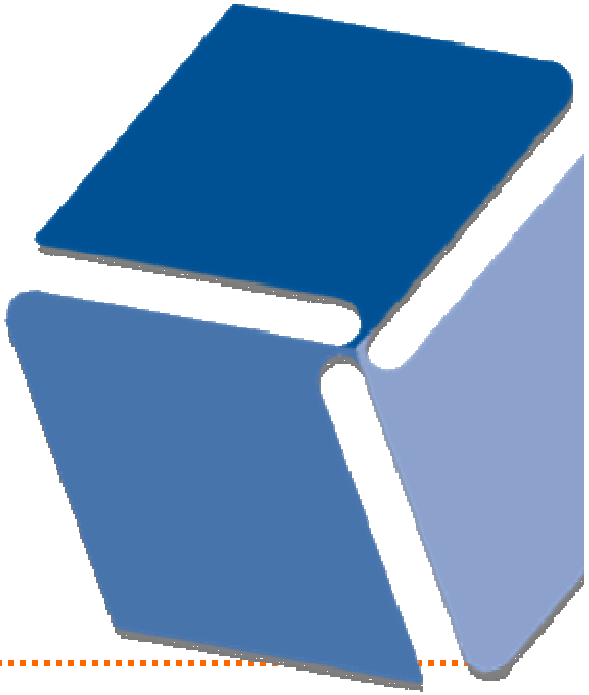
Escalating Engagement: Connecting Higher Education & Workforce Needs



A Project Funded by the Ford Foundation

September 30, 2008

Renton, Washington

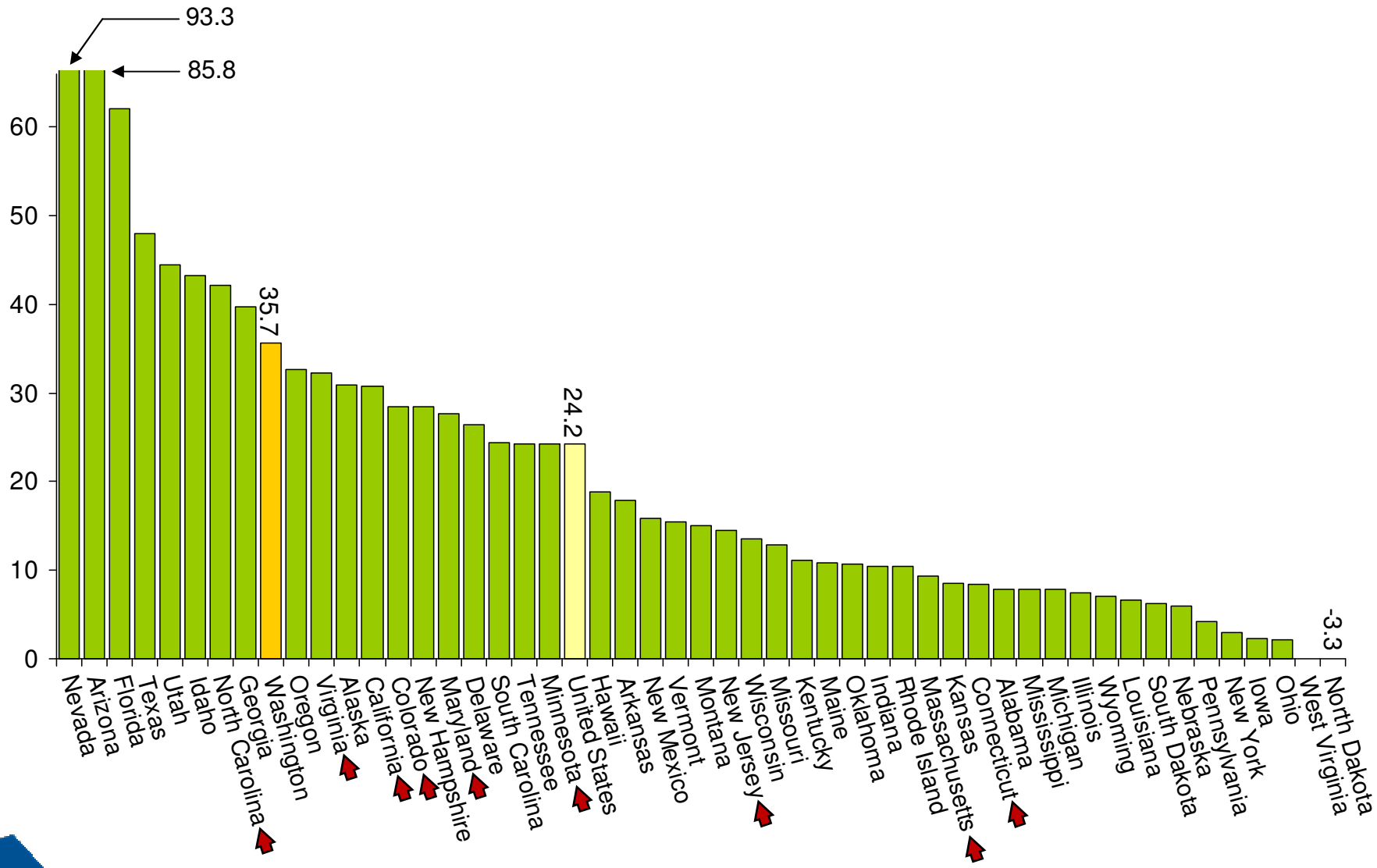
NCHEMS

National Center for Higher Education Management Systems

3035 Center Green Drive, Suite 150

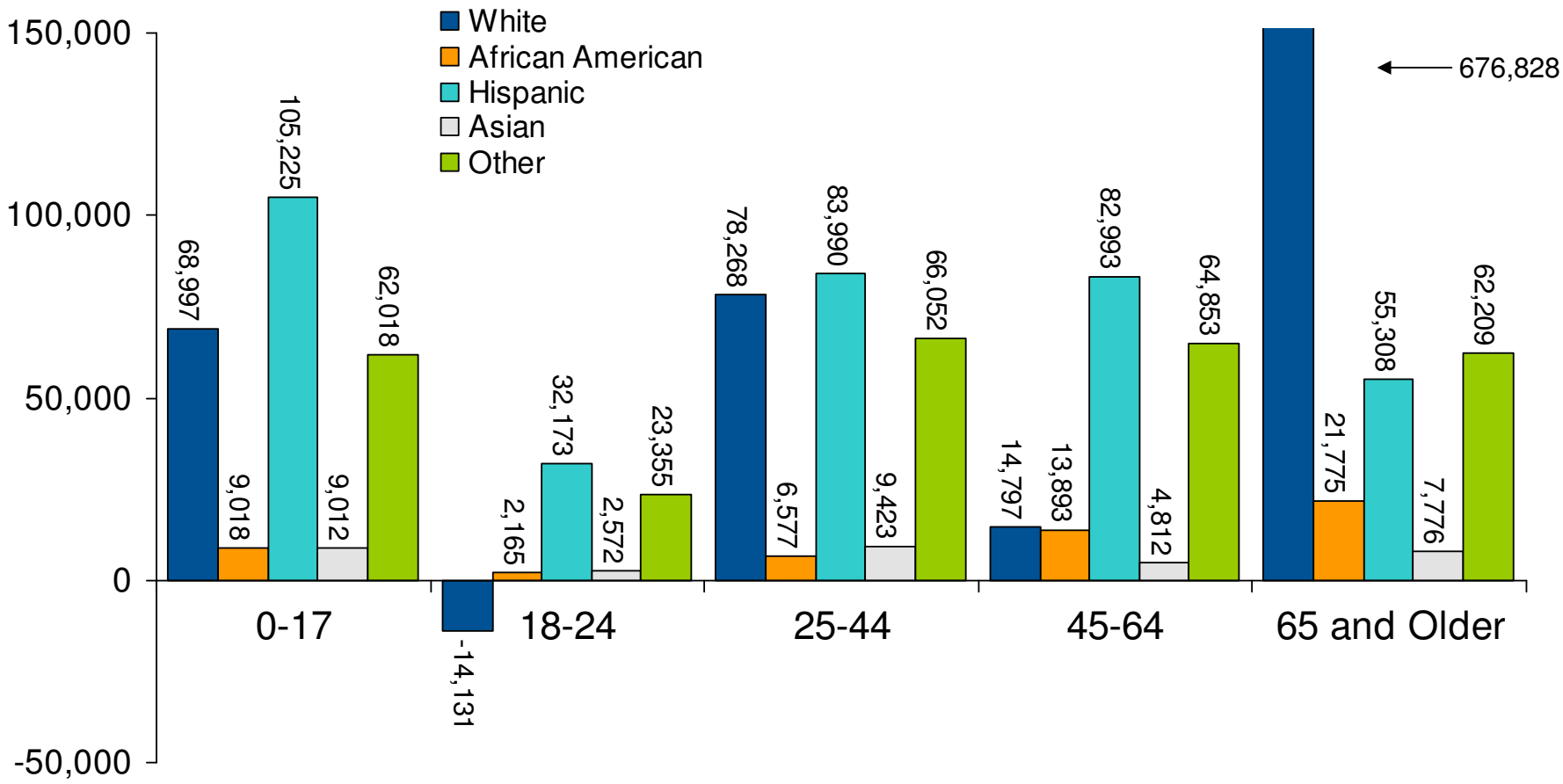
Boulder, Colorado 80301

Population Projections—Percent Change, 2000-25



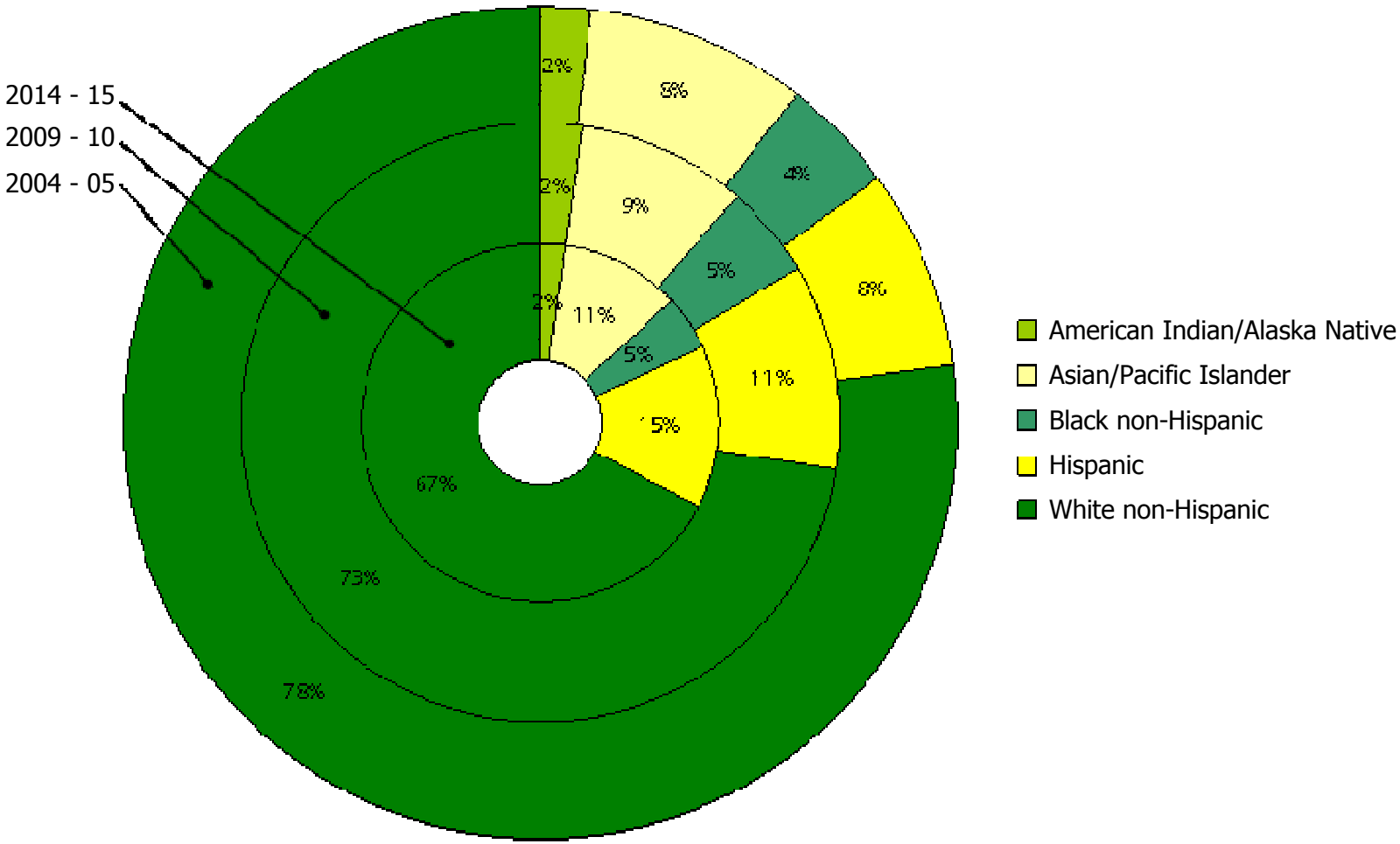
Source: U.S. Census Bureau

Projected Change in Washington Population by Age & Race/Ethnicity, 2005-25 (in Thousands)



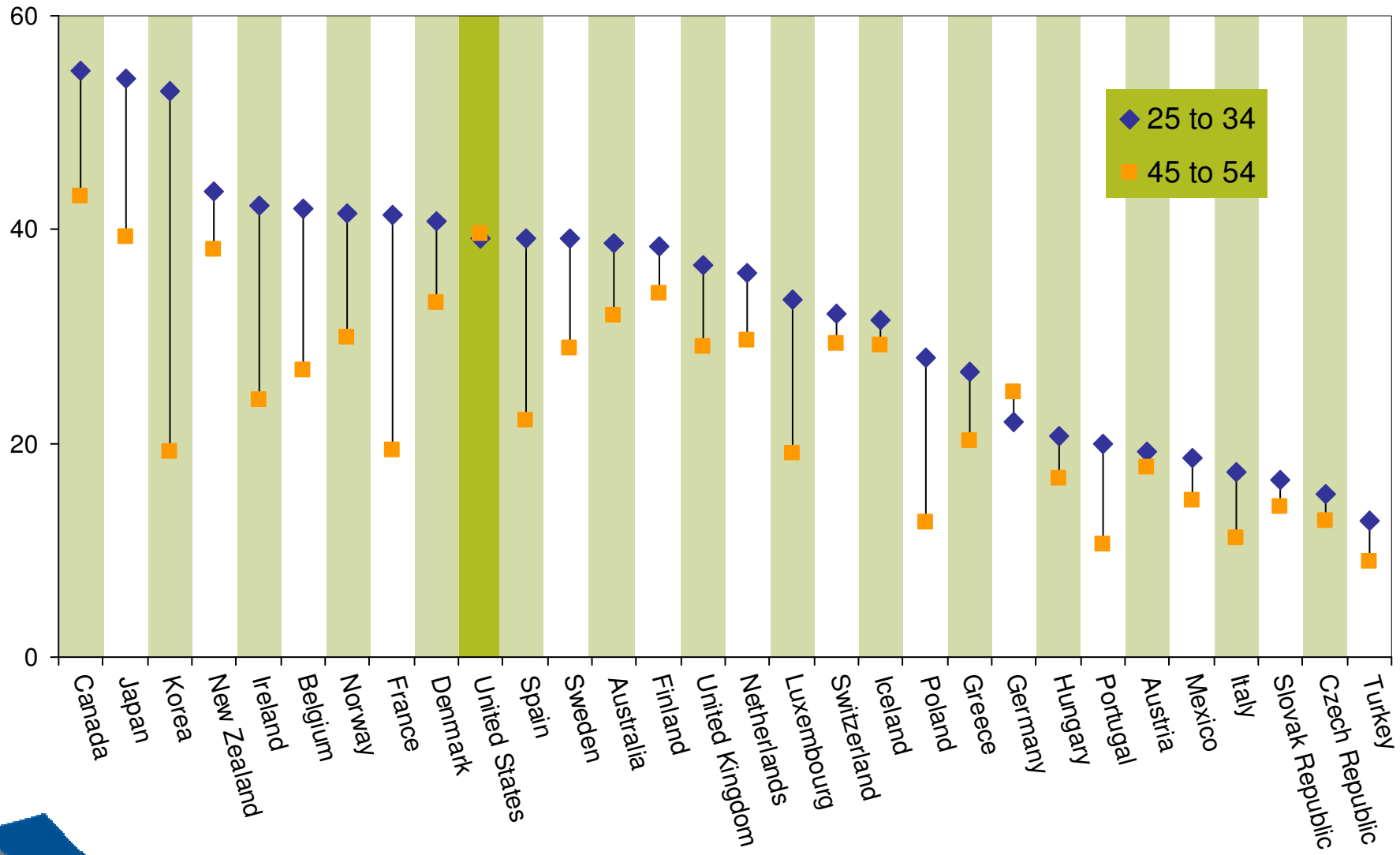
Source: U.S. Census Bureau

Racial/Ethnic Composition of Public High School Graduates in Washington



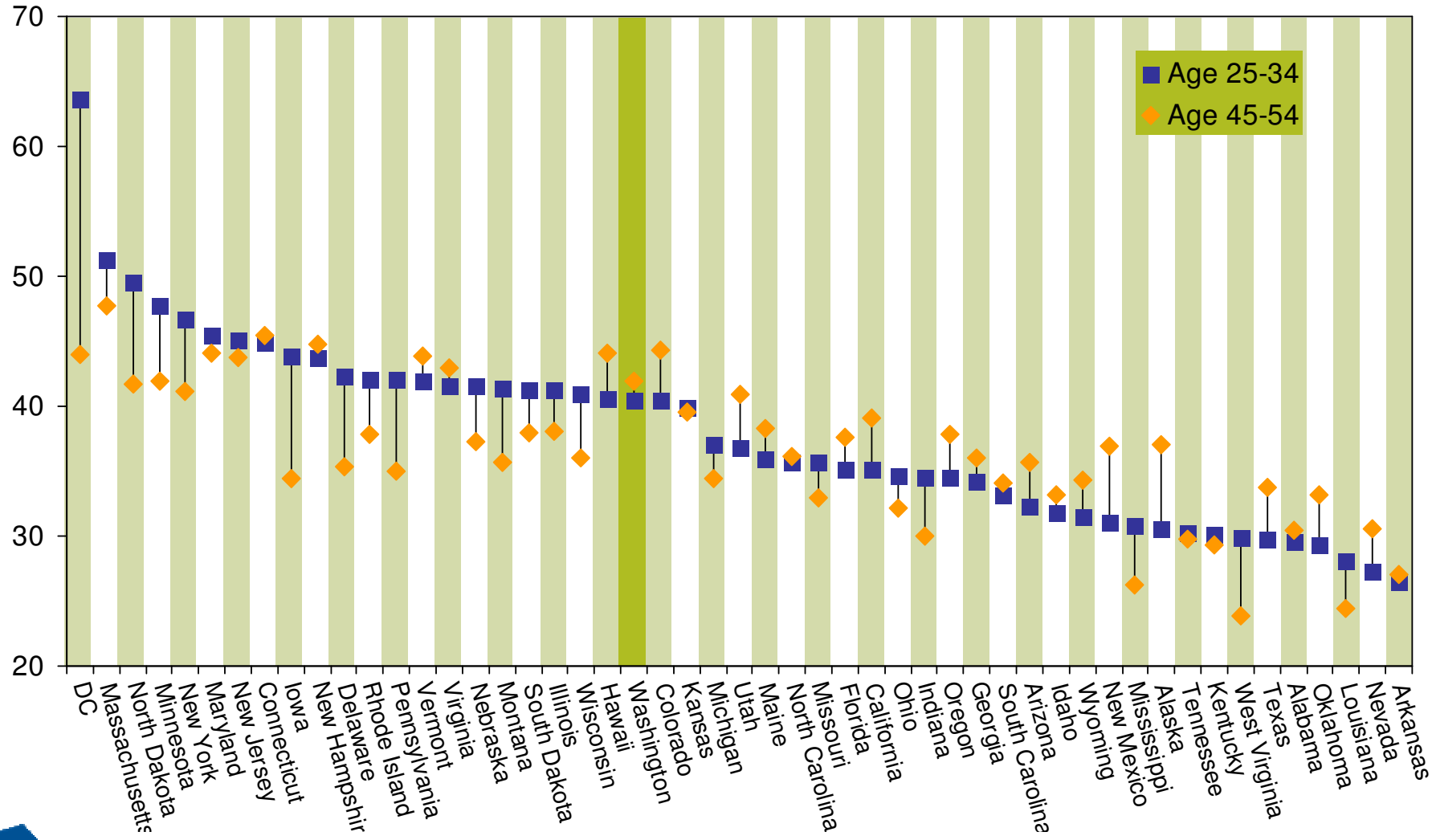
Source: WICHE, *Knocking at the College Door*

Differences in College Attainment (Associate & Higher) Between Younger & Older Adults—U.S. & OECD Countries, 2006



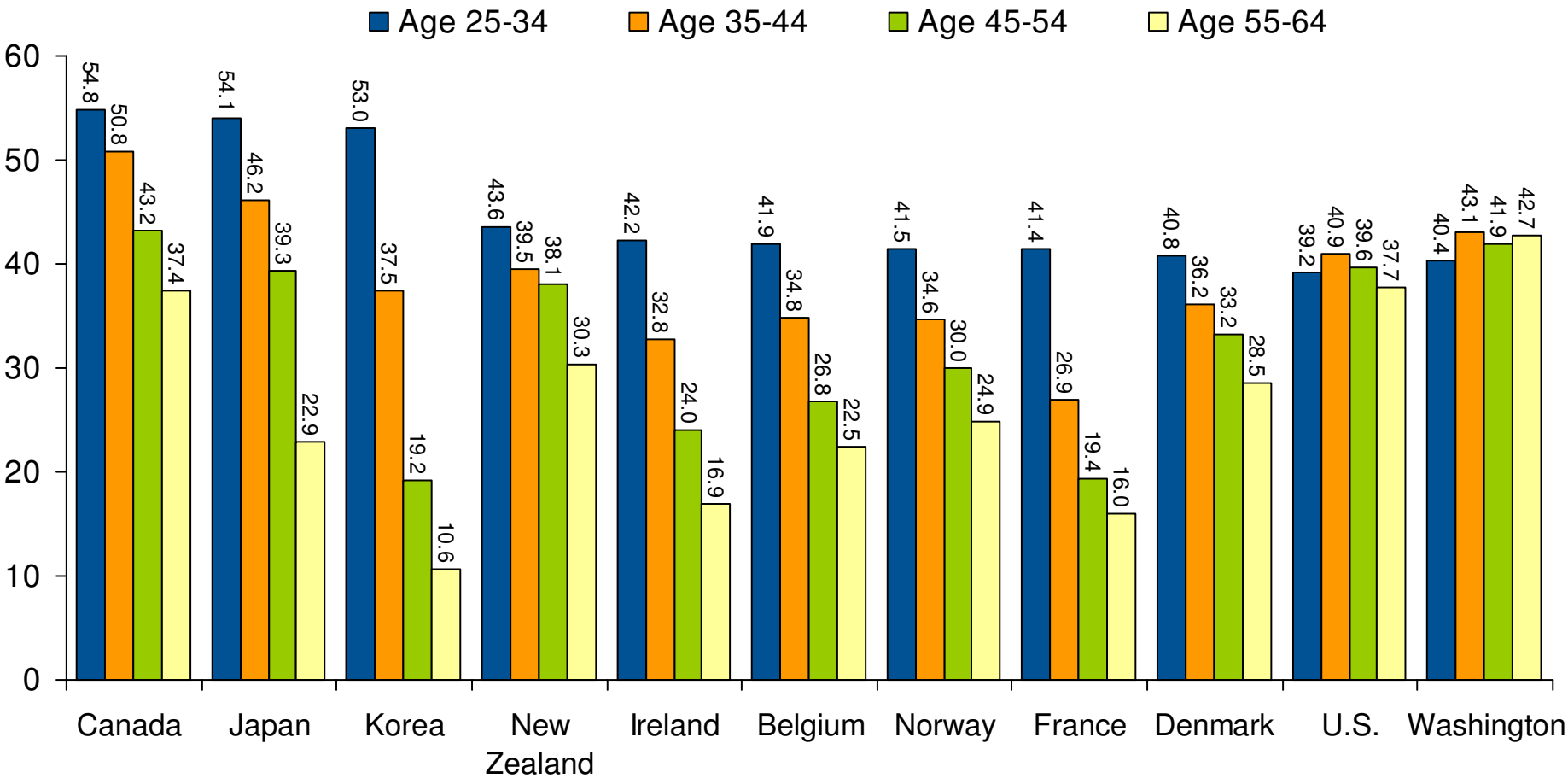
Source: Organisation for Economic Co-operation and Development (OECD), *Education at a Glance 2008*

Differences in College Attainment (Associate & Higher) Between Younger & Older Adults—U.S., 2006



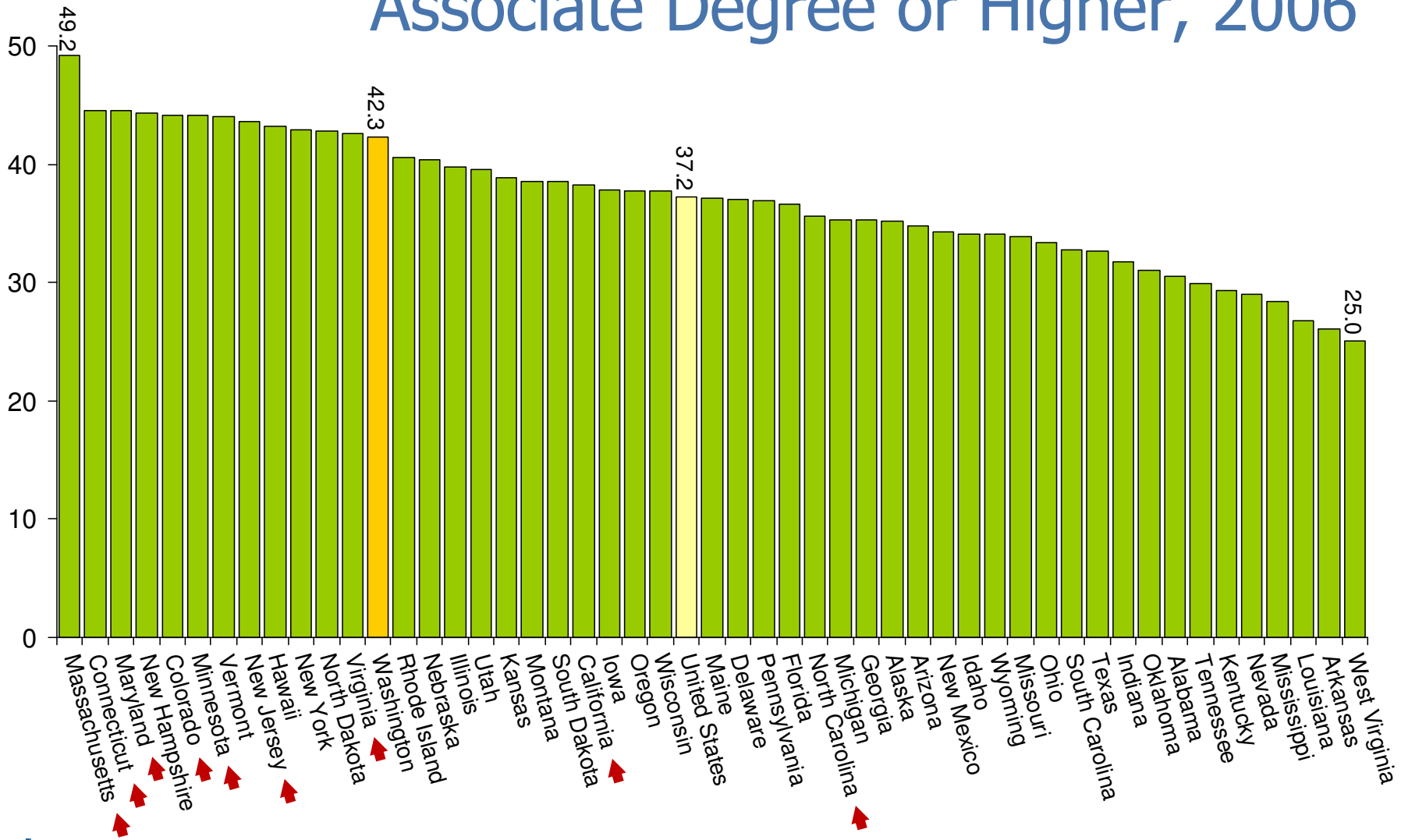
Source: U.S. Census Bureau, 2006 American Community Survey (ACS)

Percent of Adults with an Associate Degree or Higher by Age Group—Washington, U.S. & Leading OECD Countries



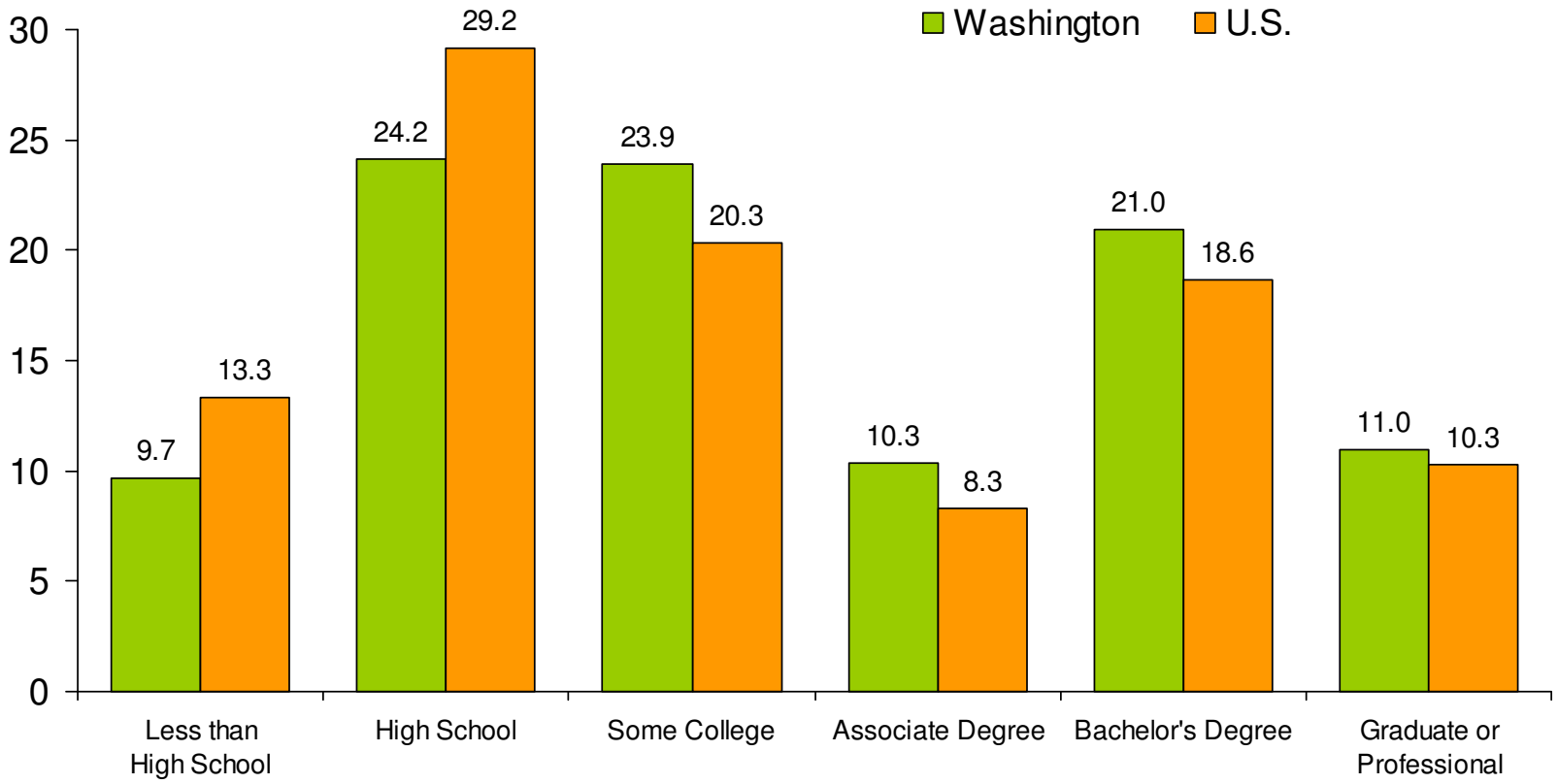
Source: OECD, *Education at a Glance 2008*

Percent of Population Age 25-64 with an Associate Degree or Higher, 2006



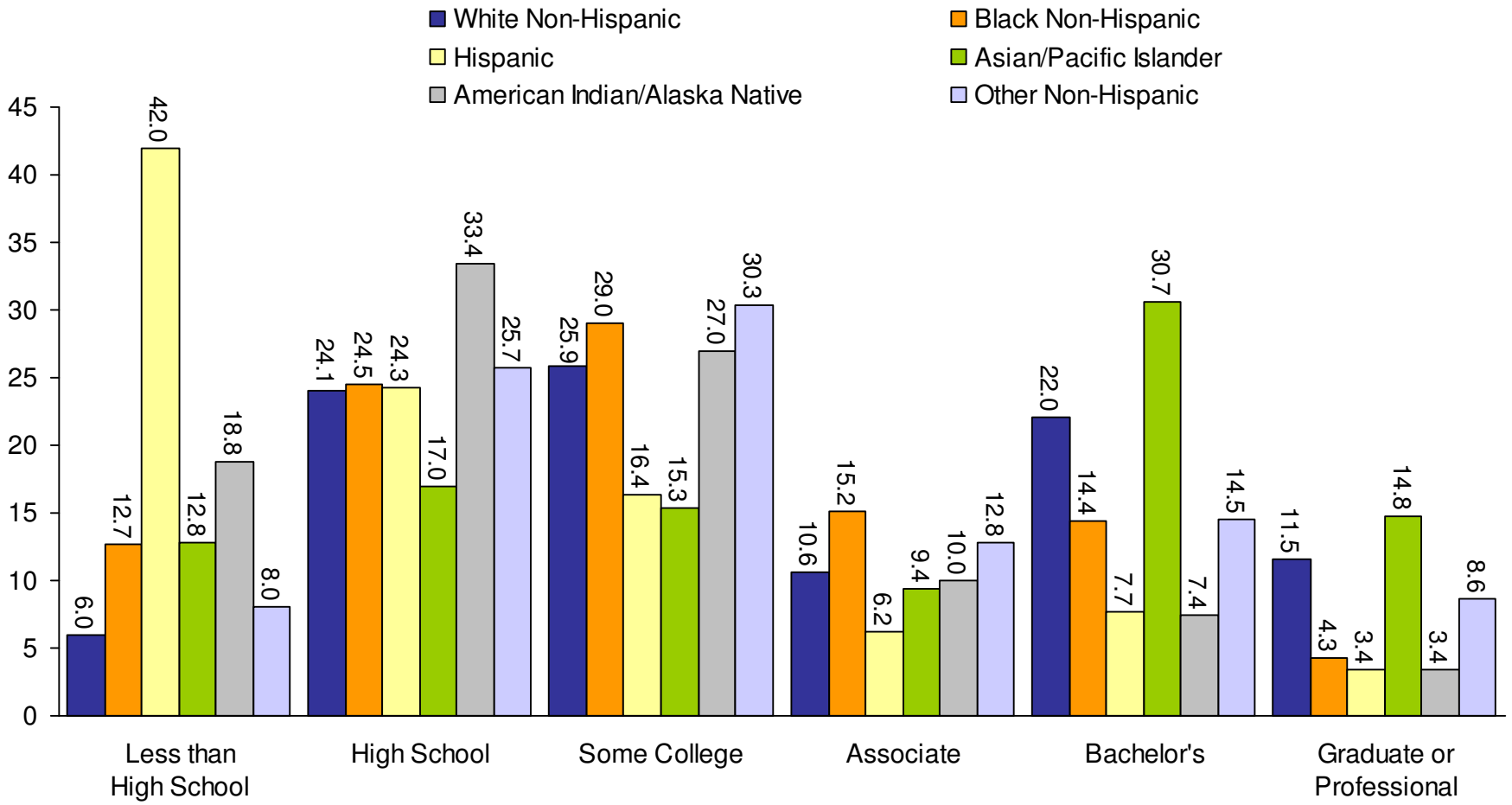
Source: U.S. Census Bureau, 2006 ACS

Educational Attainment of Population Age 25-64, 2005



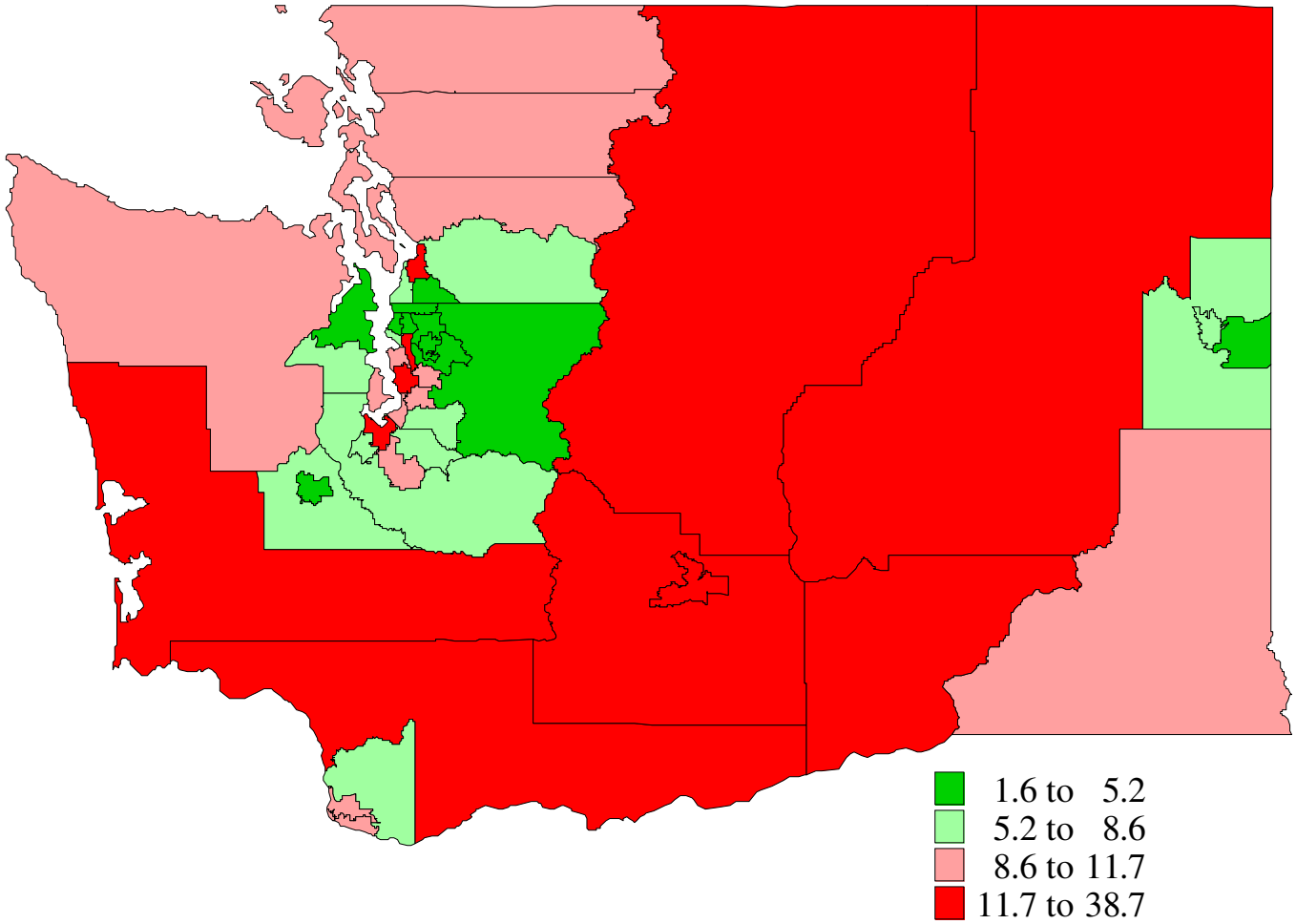
Source: U.S. Census Bureau, 2005 ACS Public Use Microdata Samples (PUMS)

Percent Educational Attainment of Population Age 25-64 By Race/Ethnicity—Washington, 2005



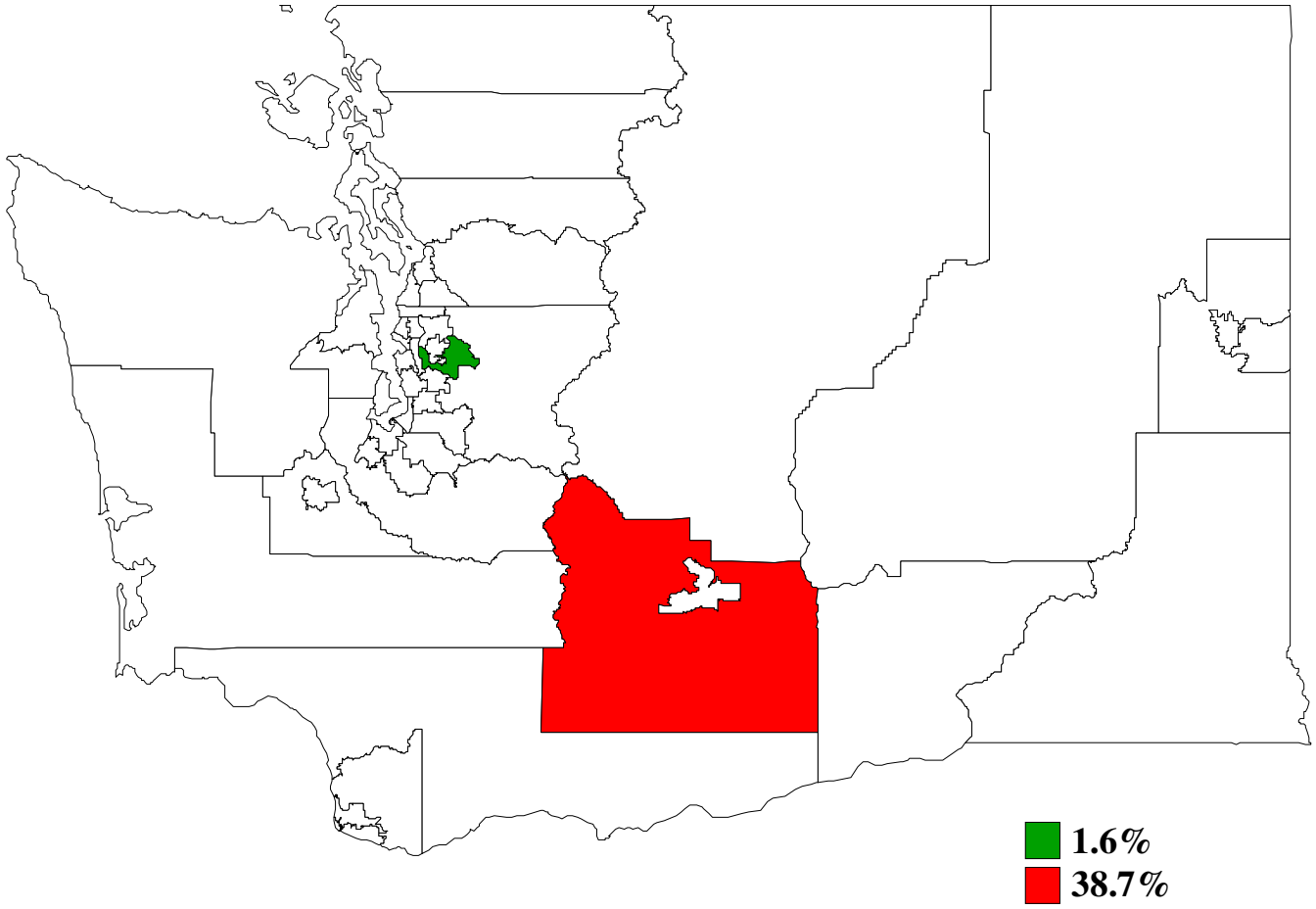
Source: U.S. Census Bureau, 2005 ACS PUMS

Percent of Population Age 25-64 with No High School Diploma, 2006—PUMAs



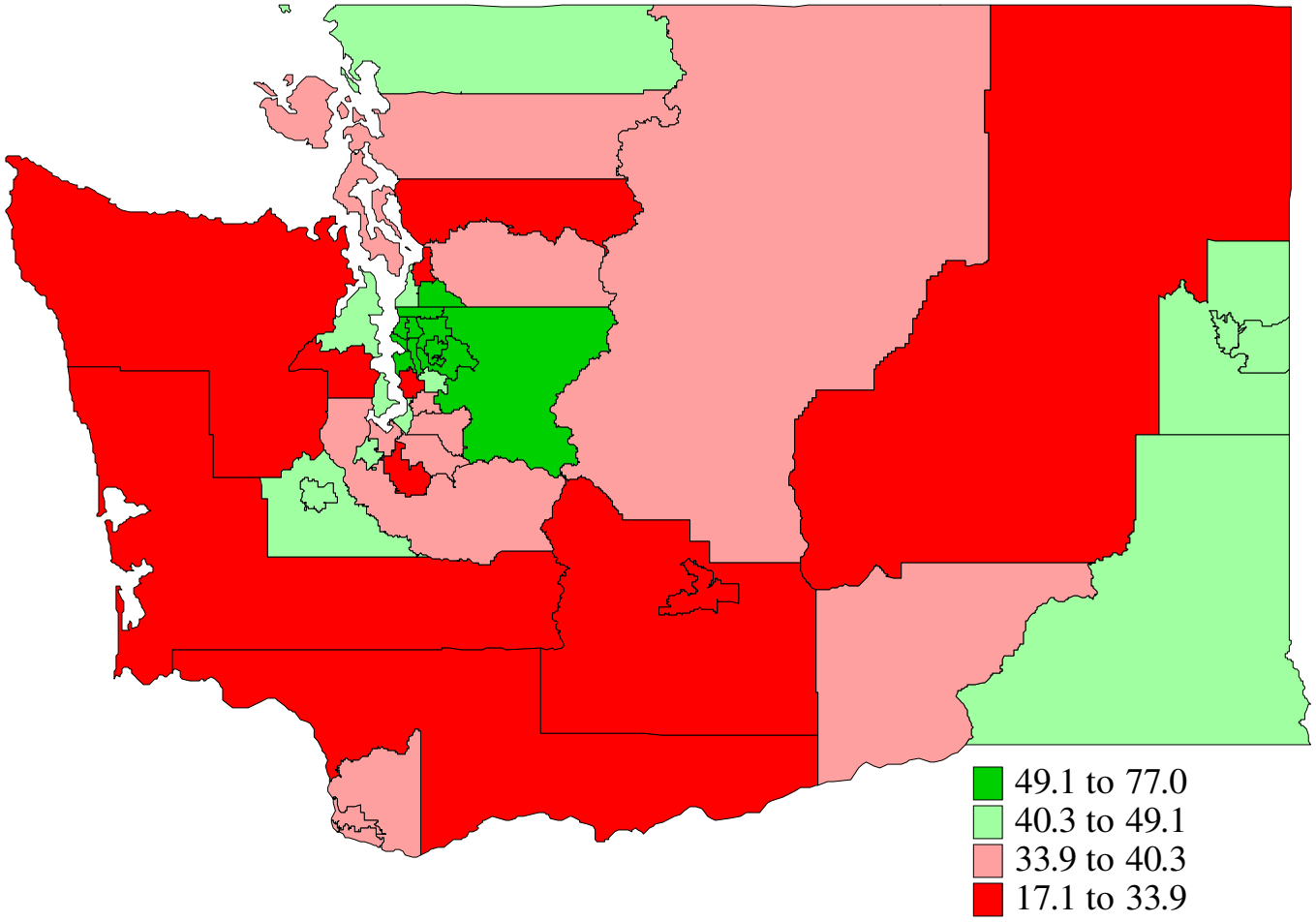
Washington = 9.7%
Source: U.S. Census Bureau, 2006 ACS

Percent of Population Age 25-64 with No High School Diploma, 2006 – High and Low PUMAs



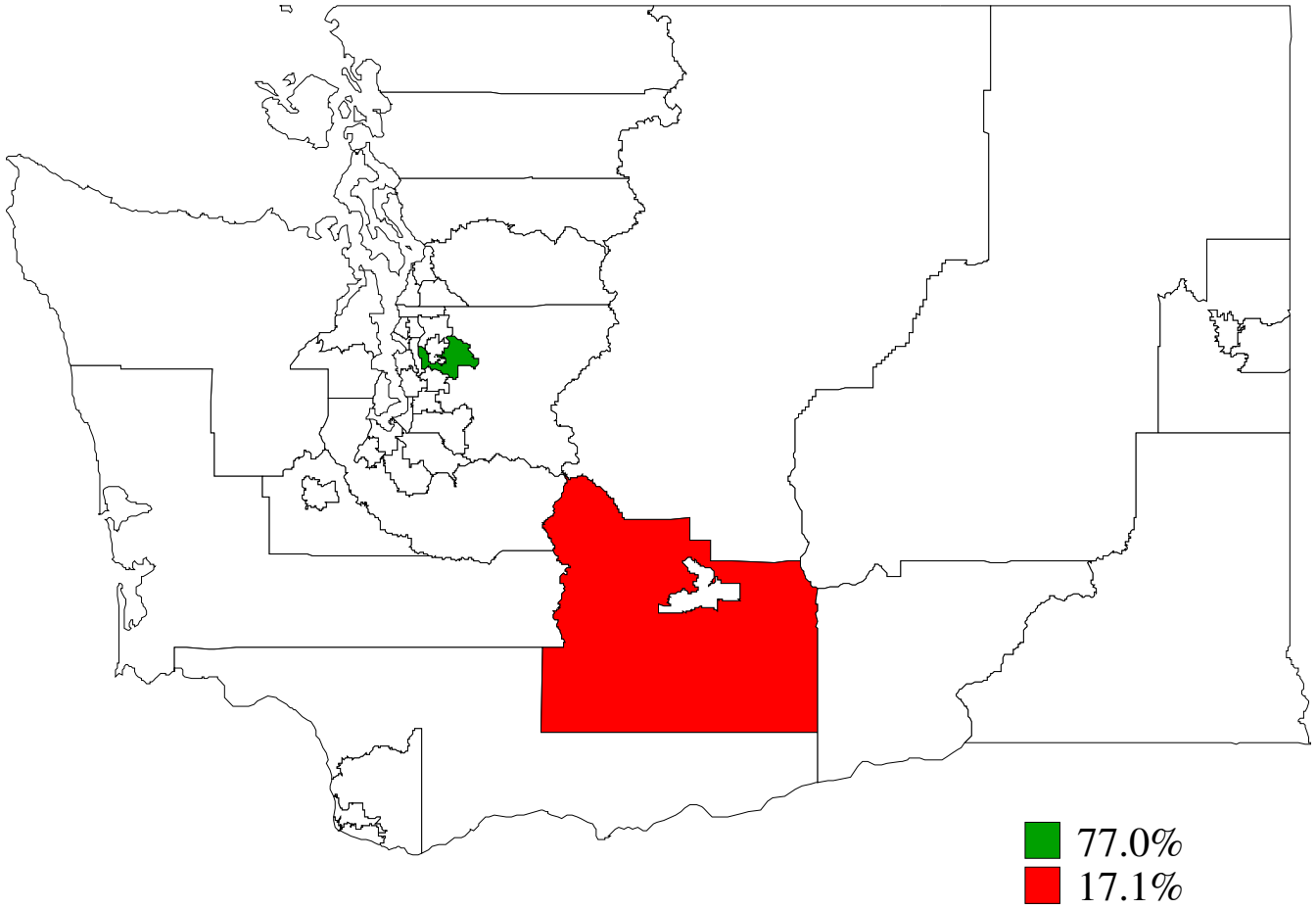
Source: U.S. Census Bureau, 2006 ACS

Percent of Population Age 25-64 with an Associate Degree or Higher, 2006—PUMAs



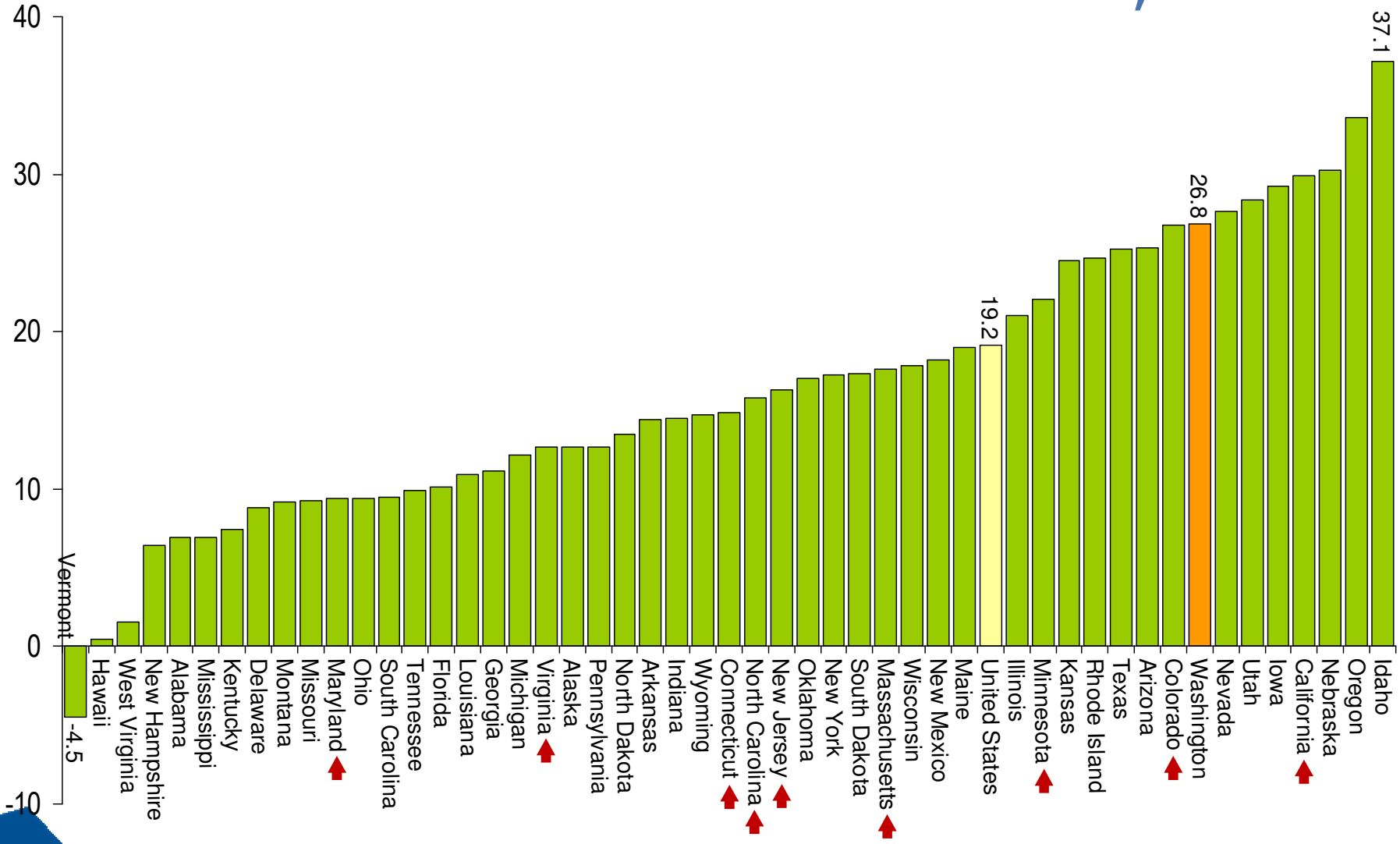
Washington = 42.3%
Source: U.S. Census Bureau, 2006 ACS

Percent of Population Age 25-64 with an Associate Degree or Higher, 2006 – High and Low PUMAs



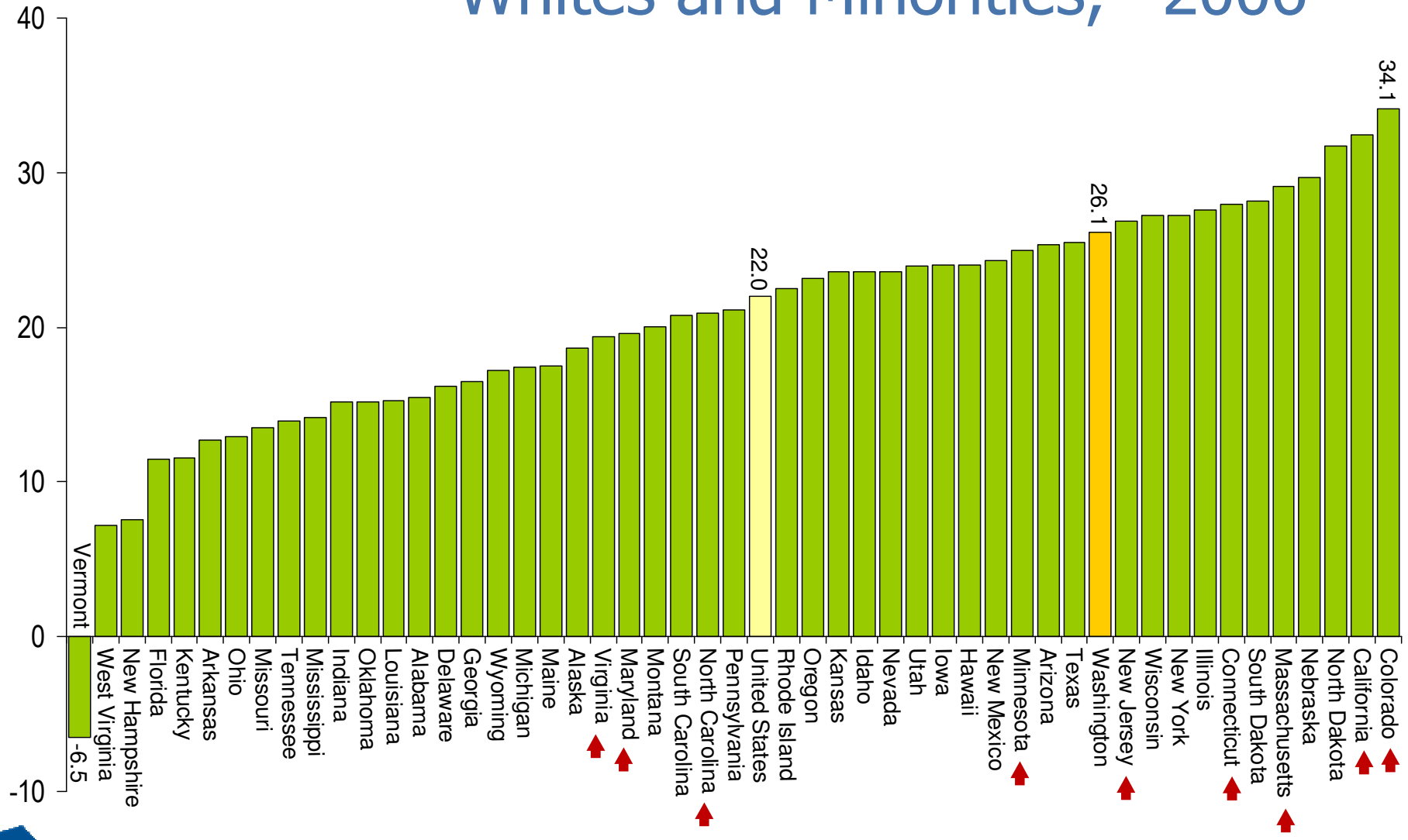
Source: U.S. Census Bureau, 2006 ACS

Difference in High School Attainment Between Whites and Minorities,* 2006



* Minorities include African-American, Hispanic, and Native American
Source: U.S. Census Bureau, 2006 ACS PUMS

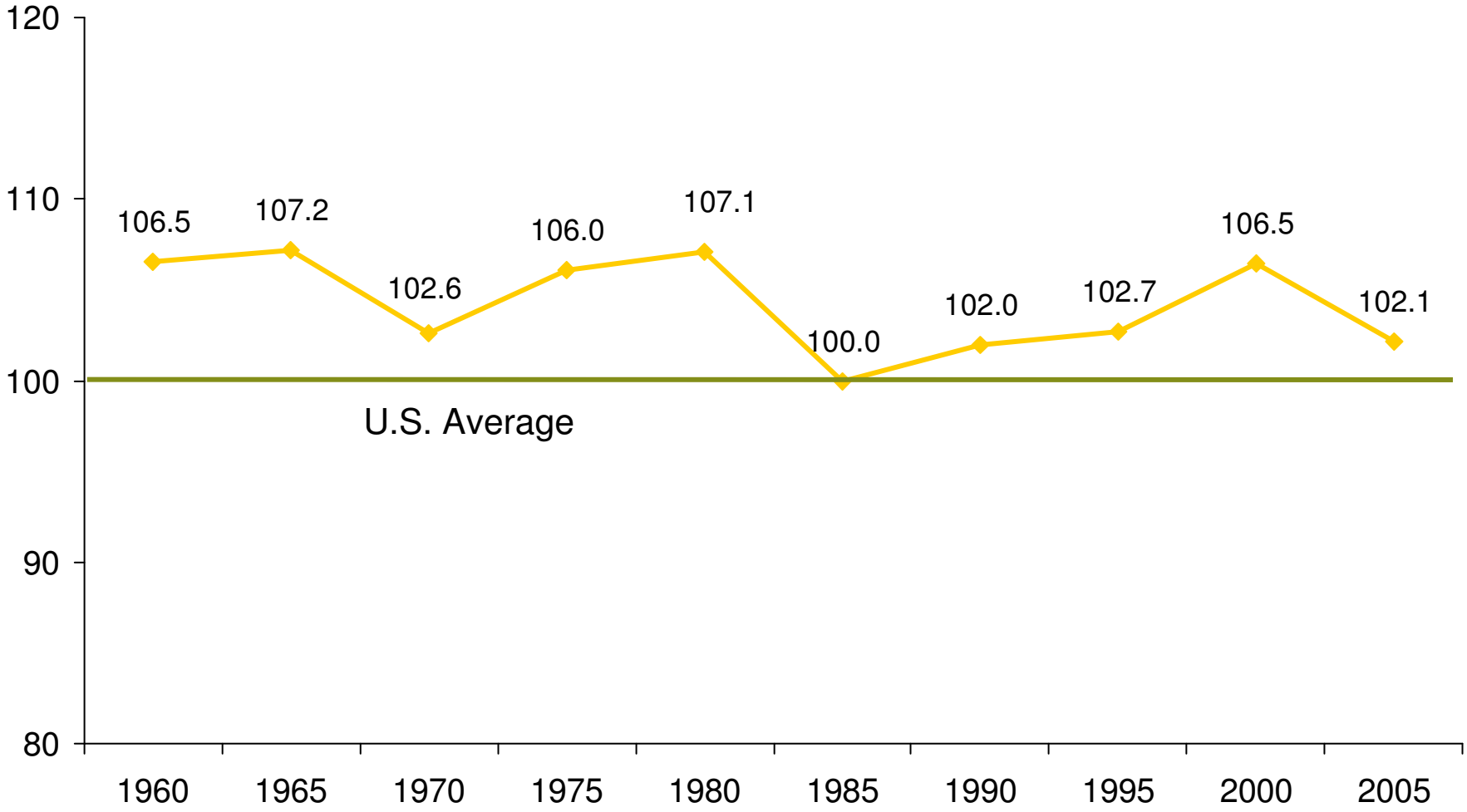
Difference in College Attainment Between Whites and Minorities,* 2006



* Minorities include African-American, Hispanic, and Native American

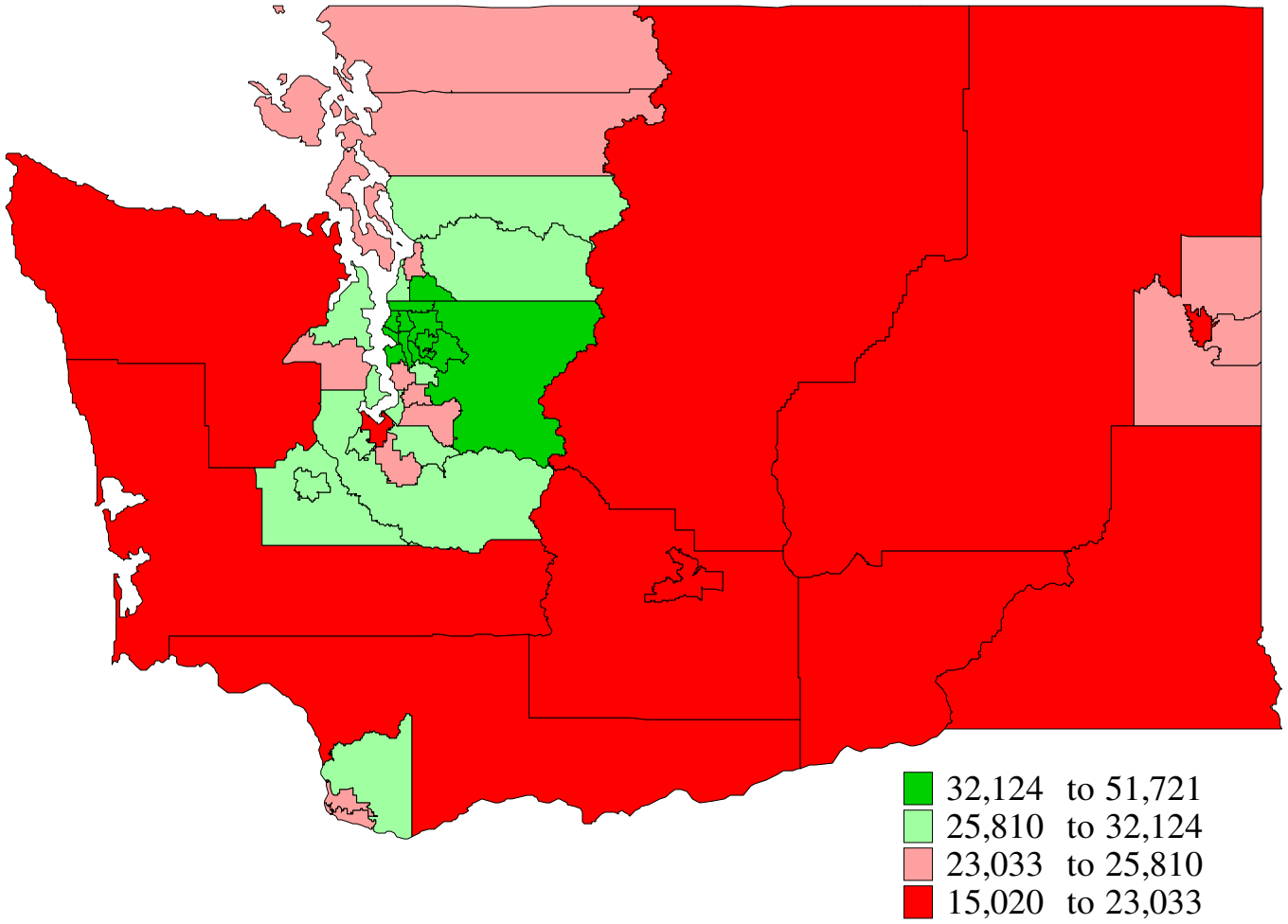
Source: U.S. Census Bureau, 2006 ACS (PUMS)

Per Capita Personal Income as a Percent of U.S. Average - Washington, 1960-2005



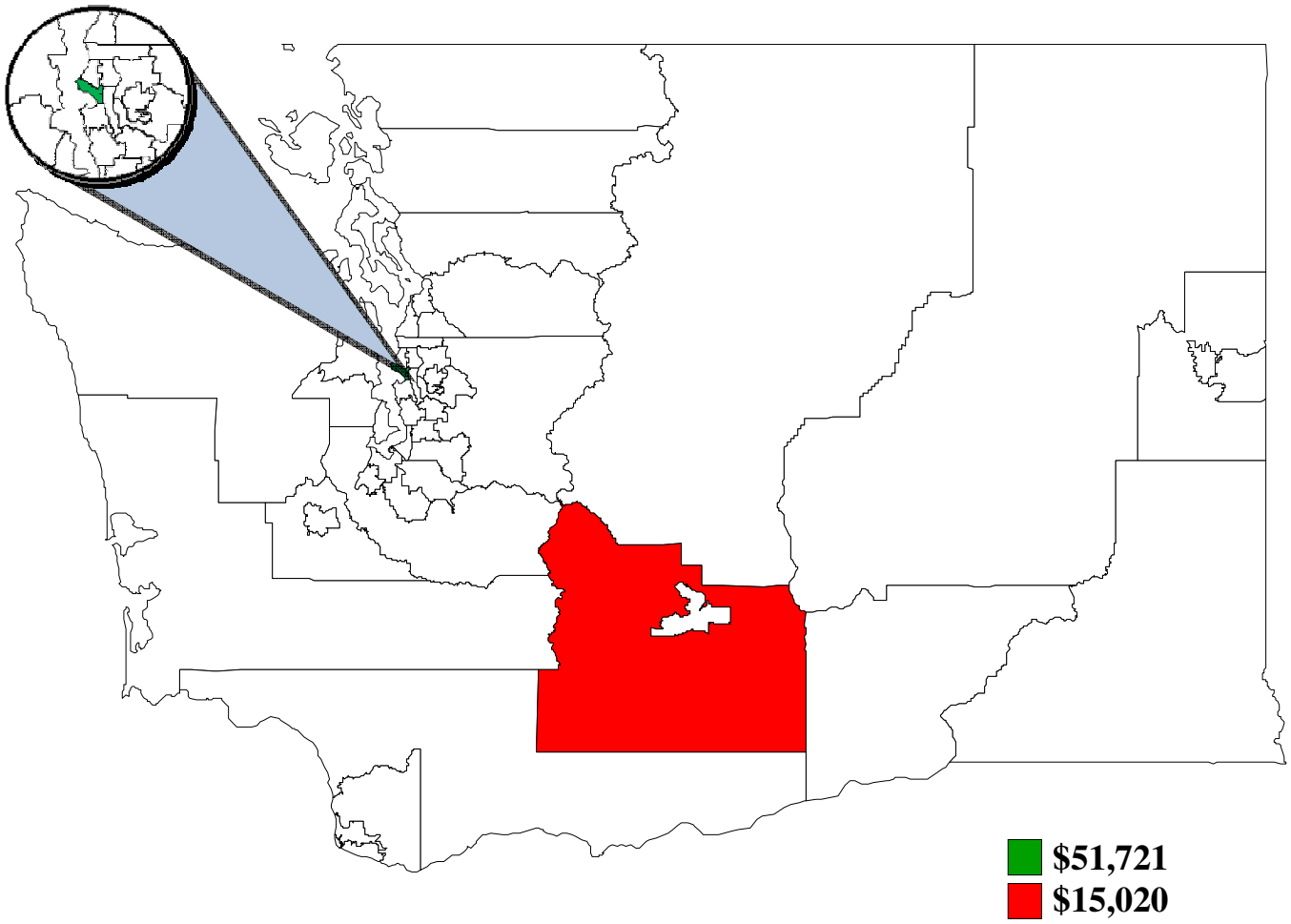
Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Dept. of Commerce

Personal Income per Capita, 2006—PUMAs



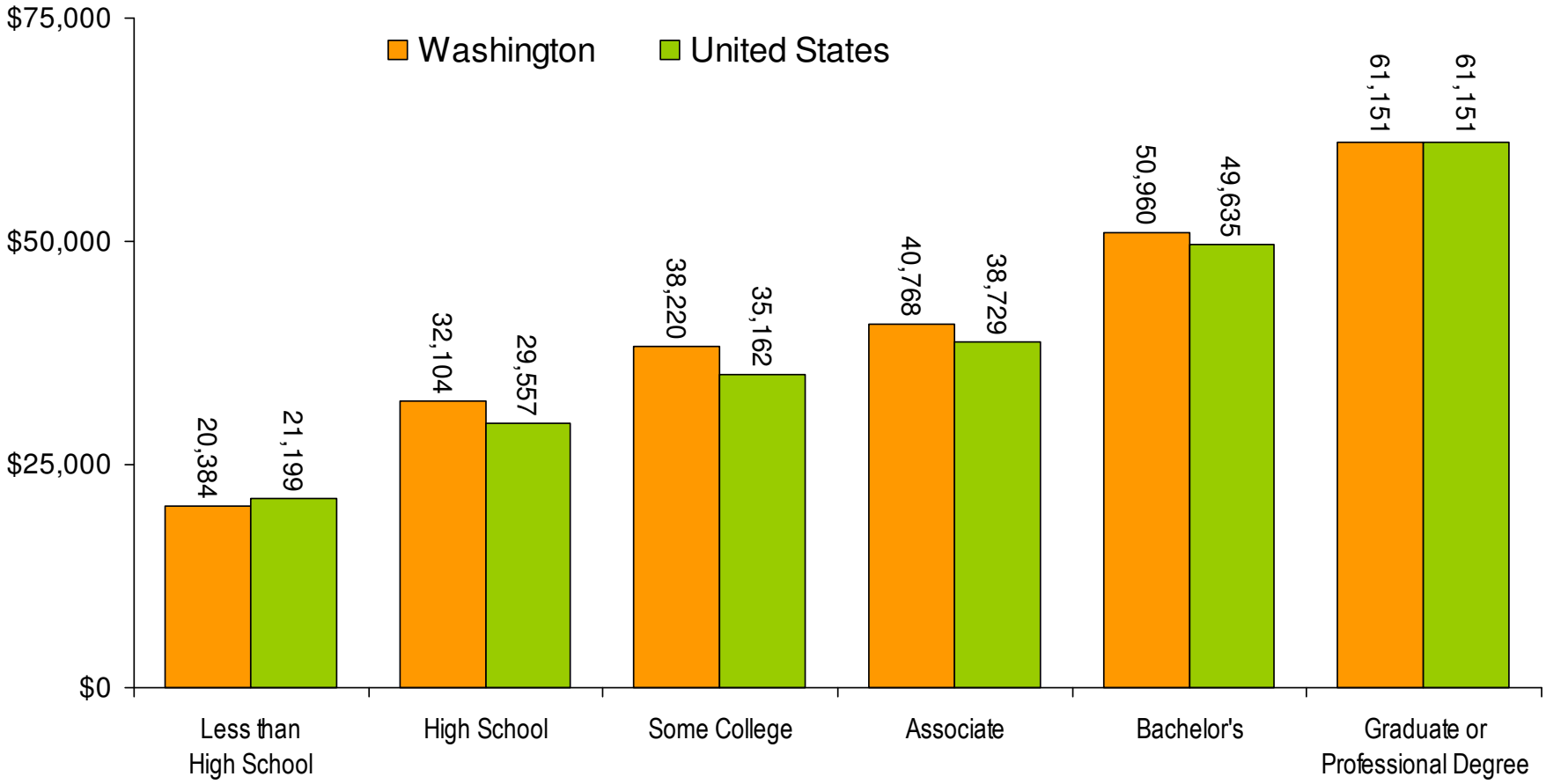
Washington = $27,346
Source: U.S. Census Bureau, 2006 ACS

Personal Income per Capita, 2006 – High and Low PUMAs



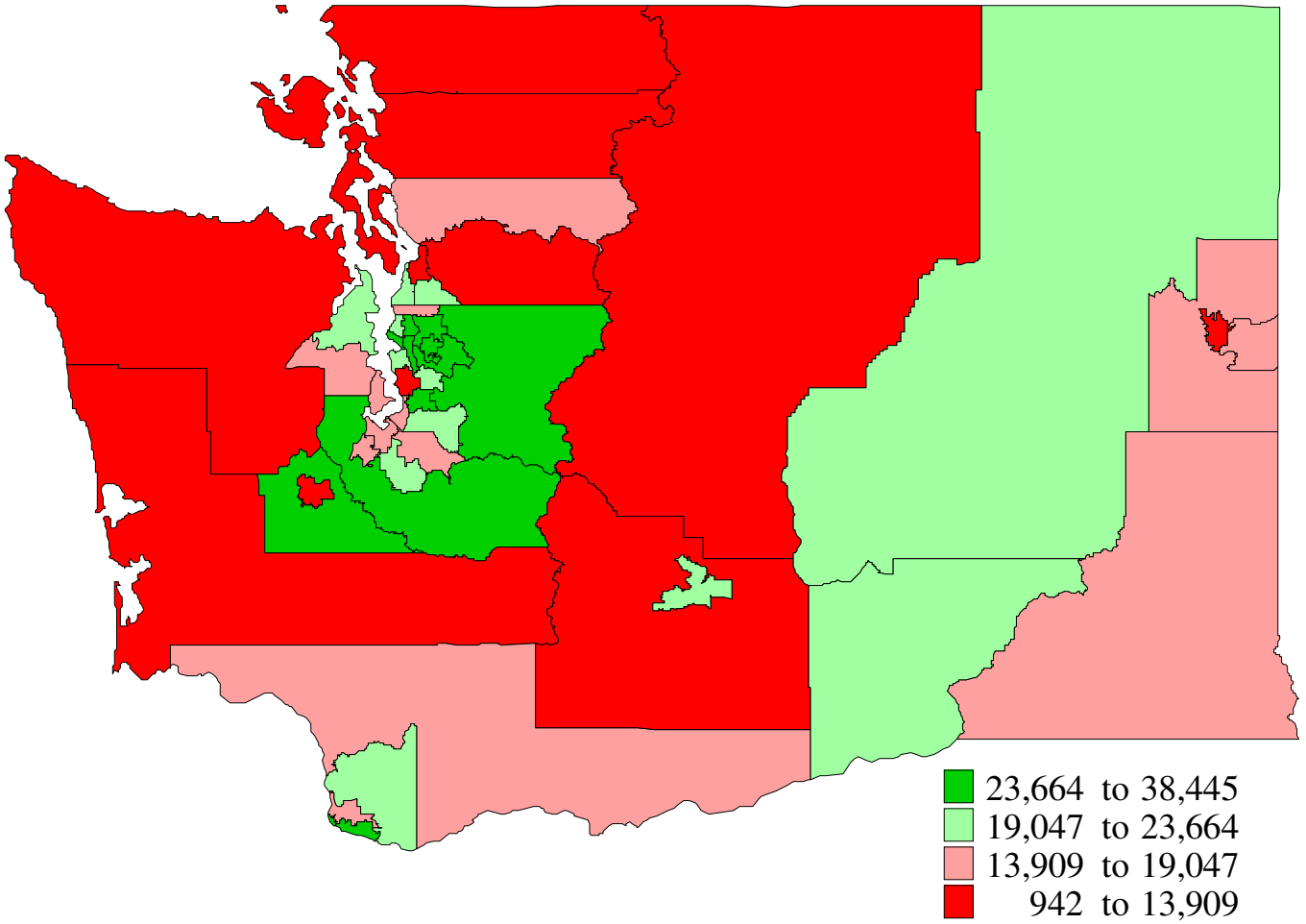
Source: U.S. Census Bureau, 2006 ACS

Median Earnings of Population Age 25-64 by Level of Education, 2005



Source: U.S. Census Bureau, ACS

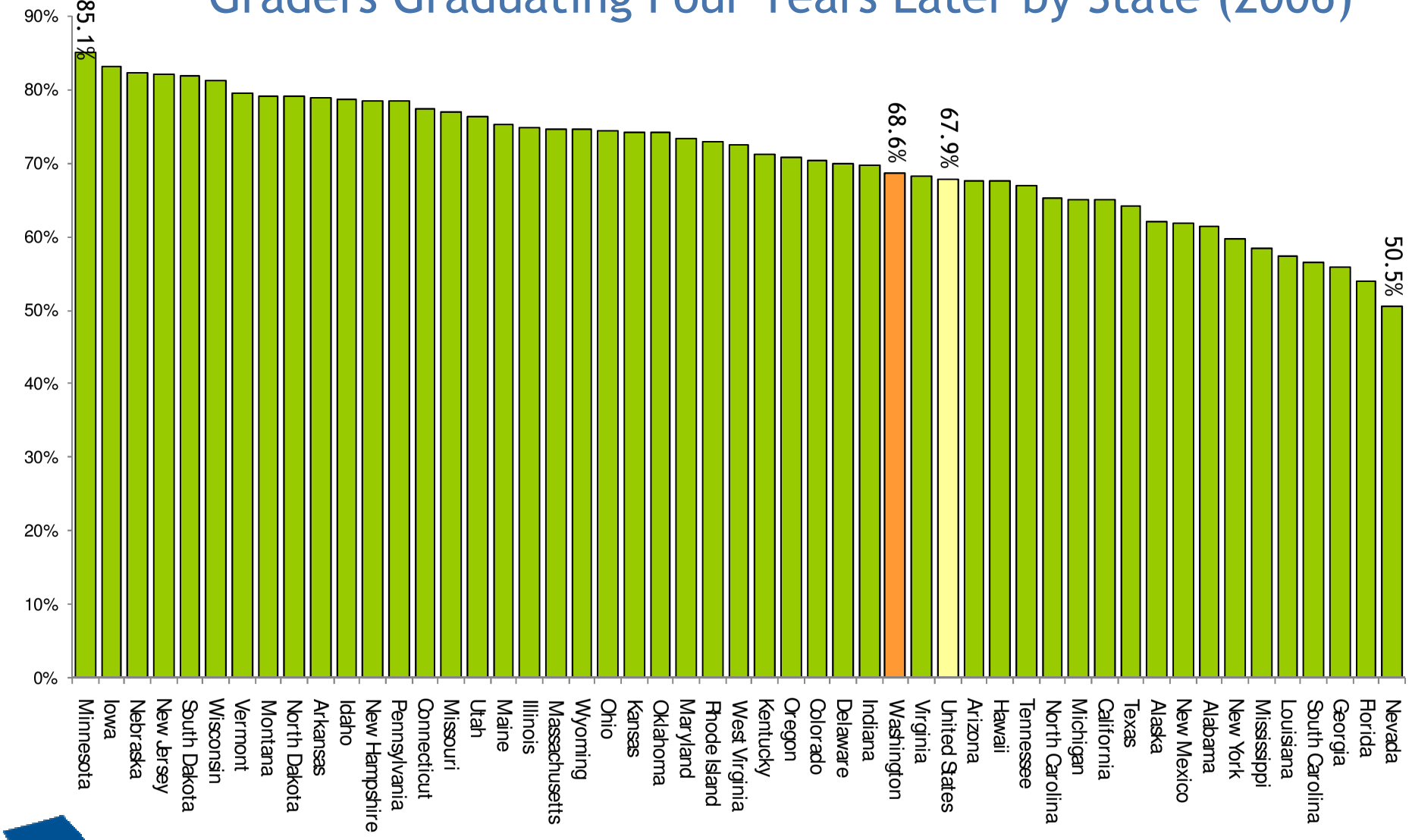
Difference in Median Earnings Between a High School Diploma and a Bachelor's Degree, 2006 - PUMAs



Washington = $19,696
Source: U.S. Census Bureau, 2006 ACS

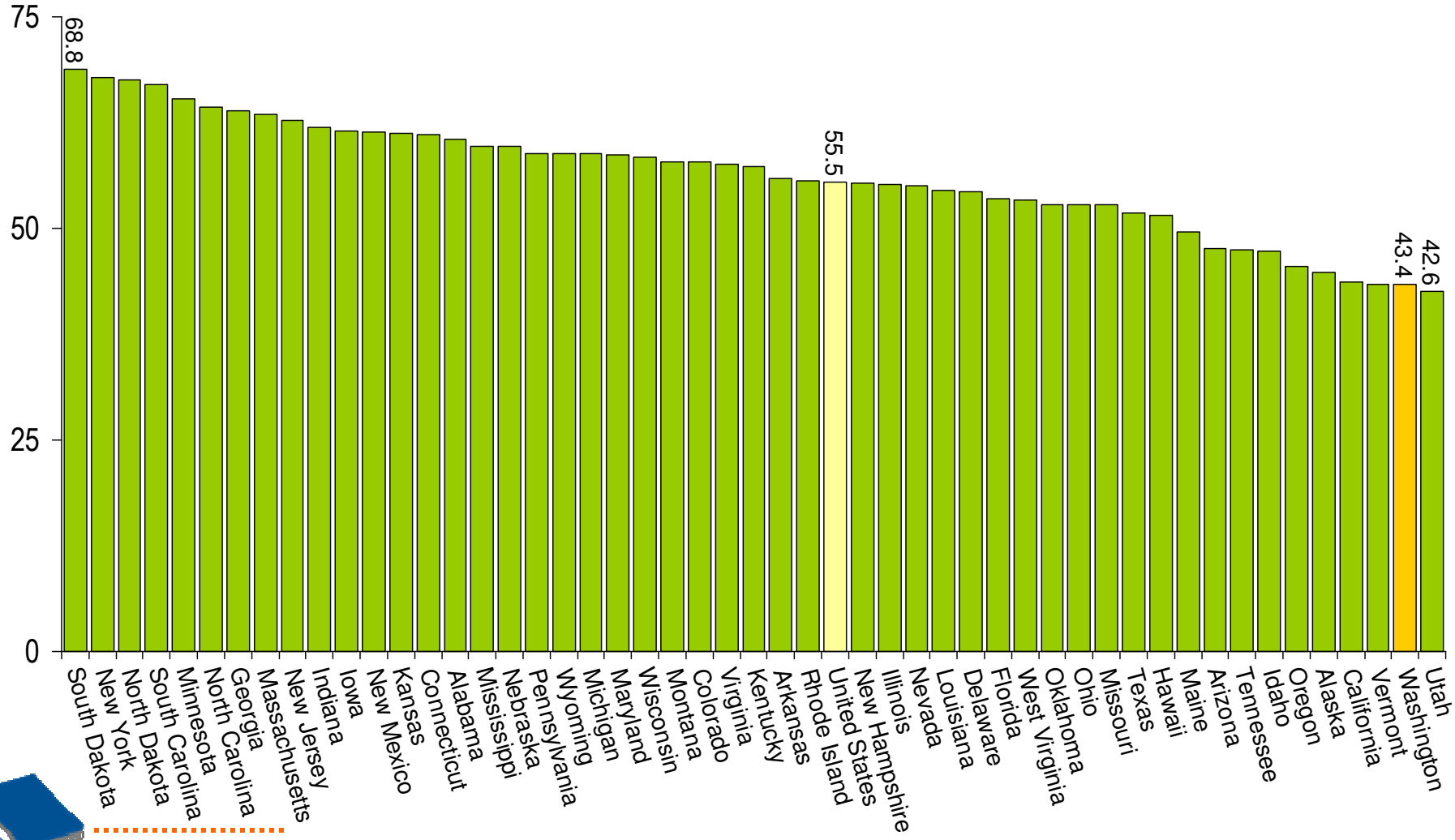
THE EDUCATION PIPELINE

Public High School Graduation Rate – Percent of 9th Graders Graduating Four Years Later by State (2006)



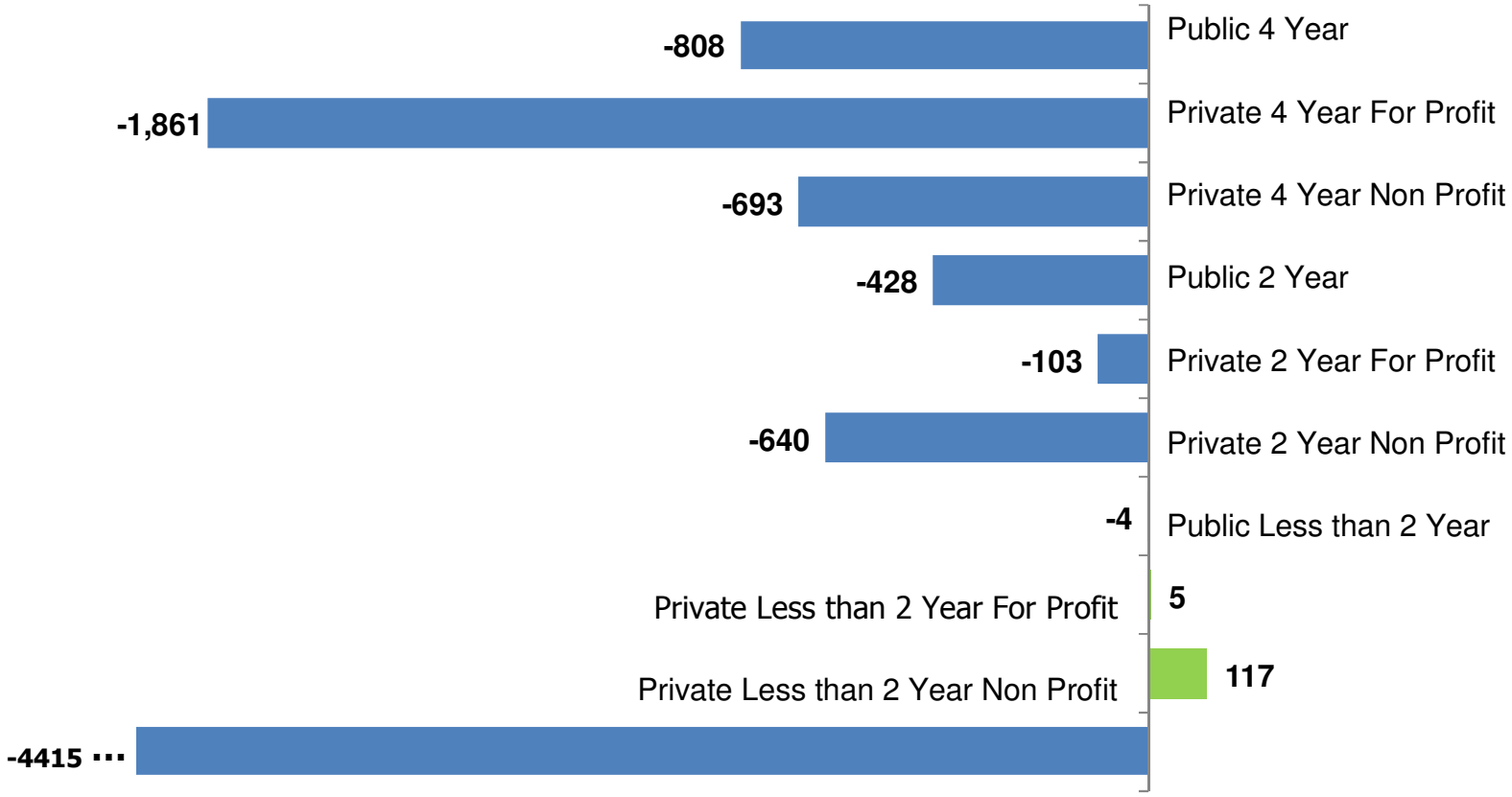
Source: National Center for Education Statistics, Common Core Data

College-Going Rates—First-Time Freshmen Directly Out of High School as a Percent of Recent High School Graduates, 2004



Source: Tom Mortenson, Postsecondary Opportunity (2004 data update 02-06-07)

Washington Net Migration of First-time College Students by Sector (Fall 2006)



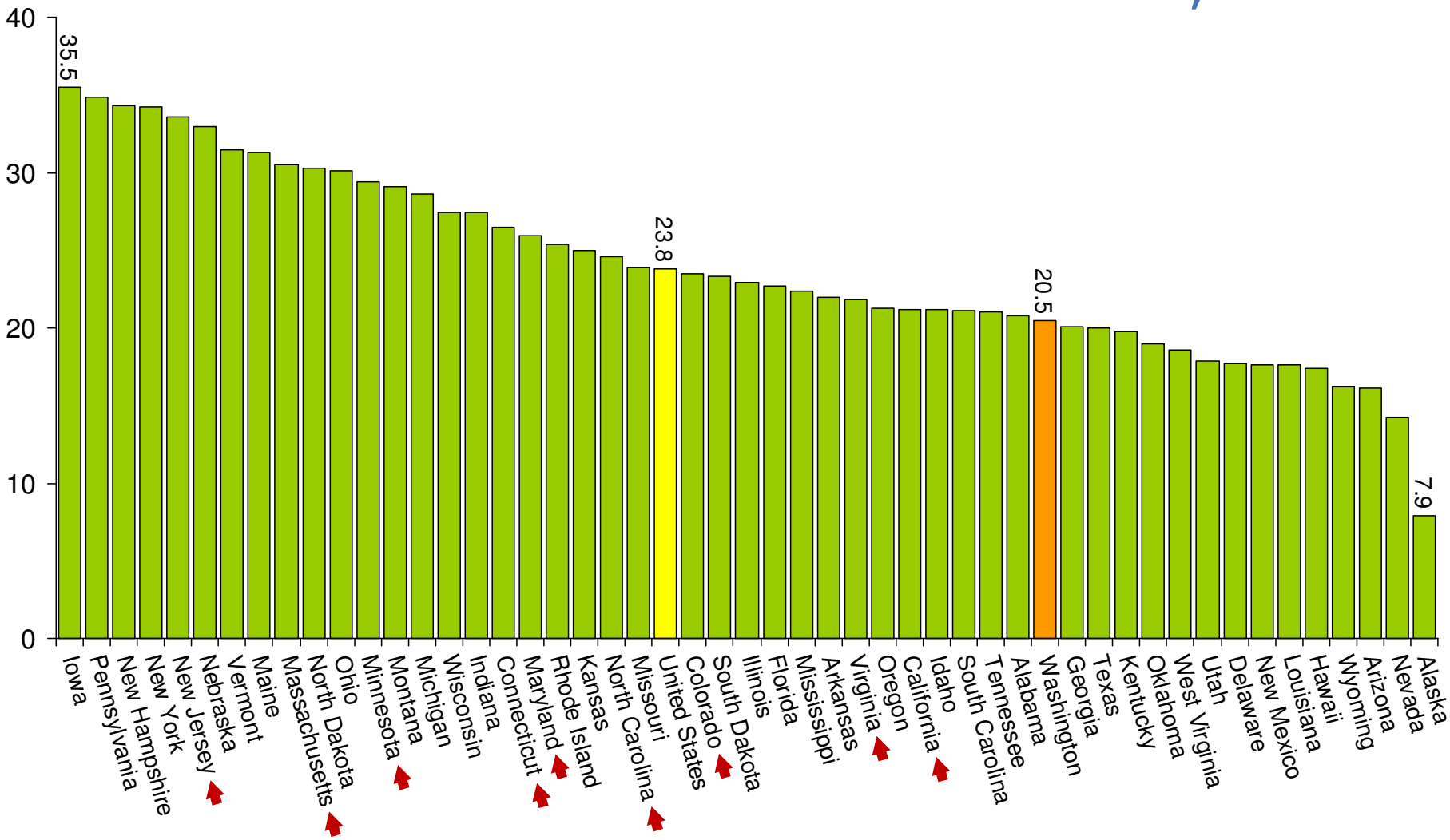
Source: NCHEMS NCES IPEDS Enrollment Survey, Part C, Fall 2006

Top Out-of-State Institutions Washington Residents Attend, Fall 2006

	STATE	FIRST-TIME FRESHMEN
University of Idaho	Idaho	309
Brigham Young University	Utah	262
University of Phoenix-Online Campus	Arizona	249
Apollo College-Portland Inc	Oregon	240
University of Portland	Oregon	198
Brigham Young University-Idaho	Idaho	180
University of Oregon	Oregon	157
American Intercontinental University Online	Illinois	151
Arizona State University- Tempe Campus	Arizona	132
Montana State University-Bozeman	Montana	129
The University of Montana	Montana	129
Western International University	Arizona	128
Mt Hood Community College	Oregon	128
Santa Clara University	California	110
University of Arizona	Arizona	103
Oregon State University	Oregon	101
Linfield College	Oregon	98
Willamette University	Oregon	89
University of Southern California	California	85
Wyoming Tech	Wyoming	83
George Fox University	Oregon	73
Portland State University	Oregon	72
Boise State University	Idaho	68
Central Texas College	Texas	66
Portland Community College	Oregon	65
Colorado Technical University Online	Colorado	65
Northwest Nazarene University	Idaho	63
North Idaho College	Idaho	61
Stanford University	California	60

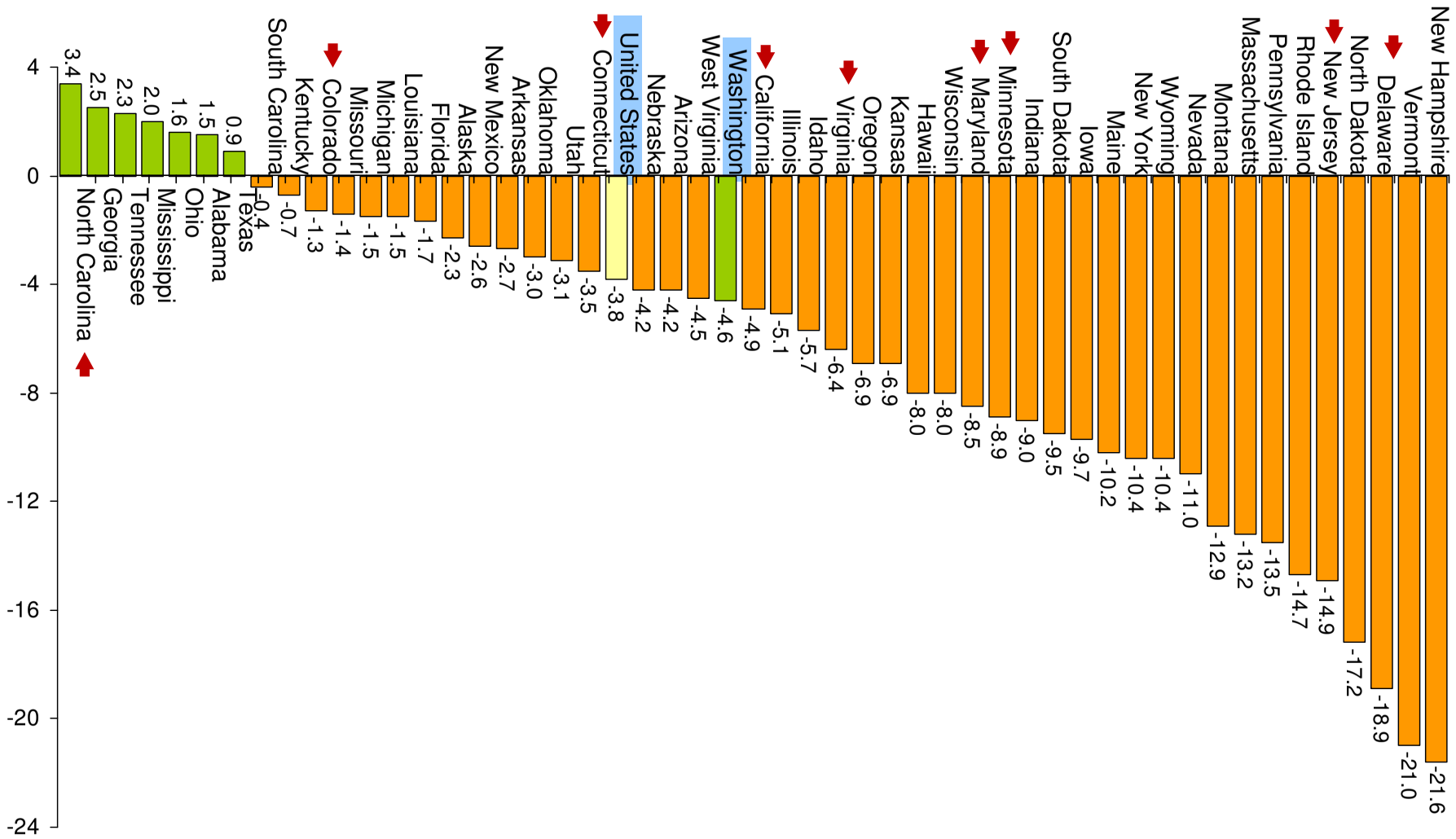
Source: NCHEMS NCES IPEDS Enrollment Survey, Part C, Fall 2006

College Participation Rates by State for Students from Low-Income Families, 2006



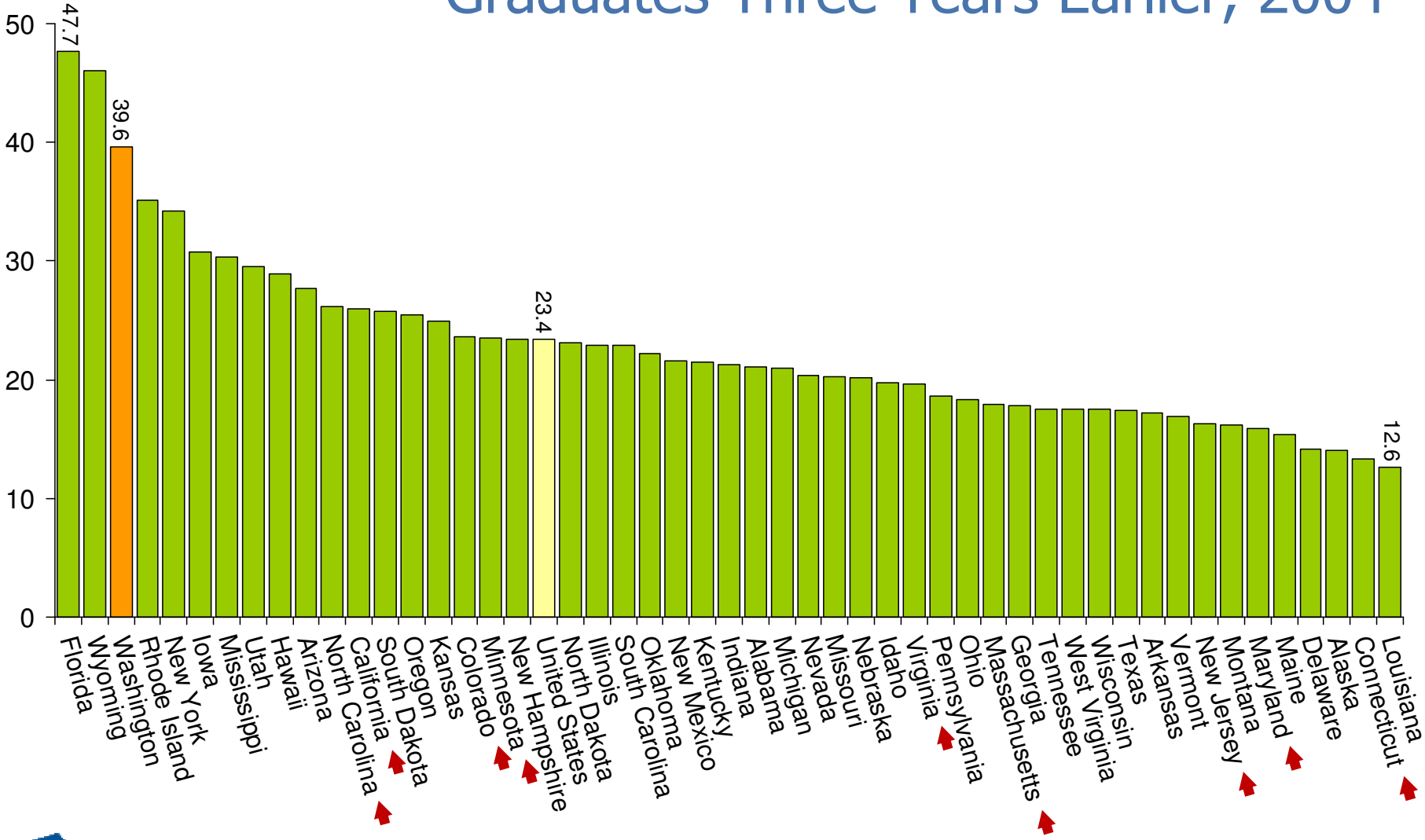
Source: *Postsecondary Education Opportunity #188*, February 2008

Change in College Participation Rates for Students from Low-Income Families by State, 1999-2006



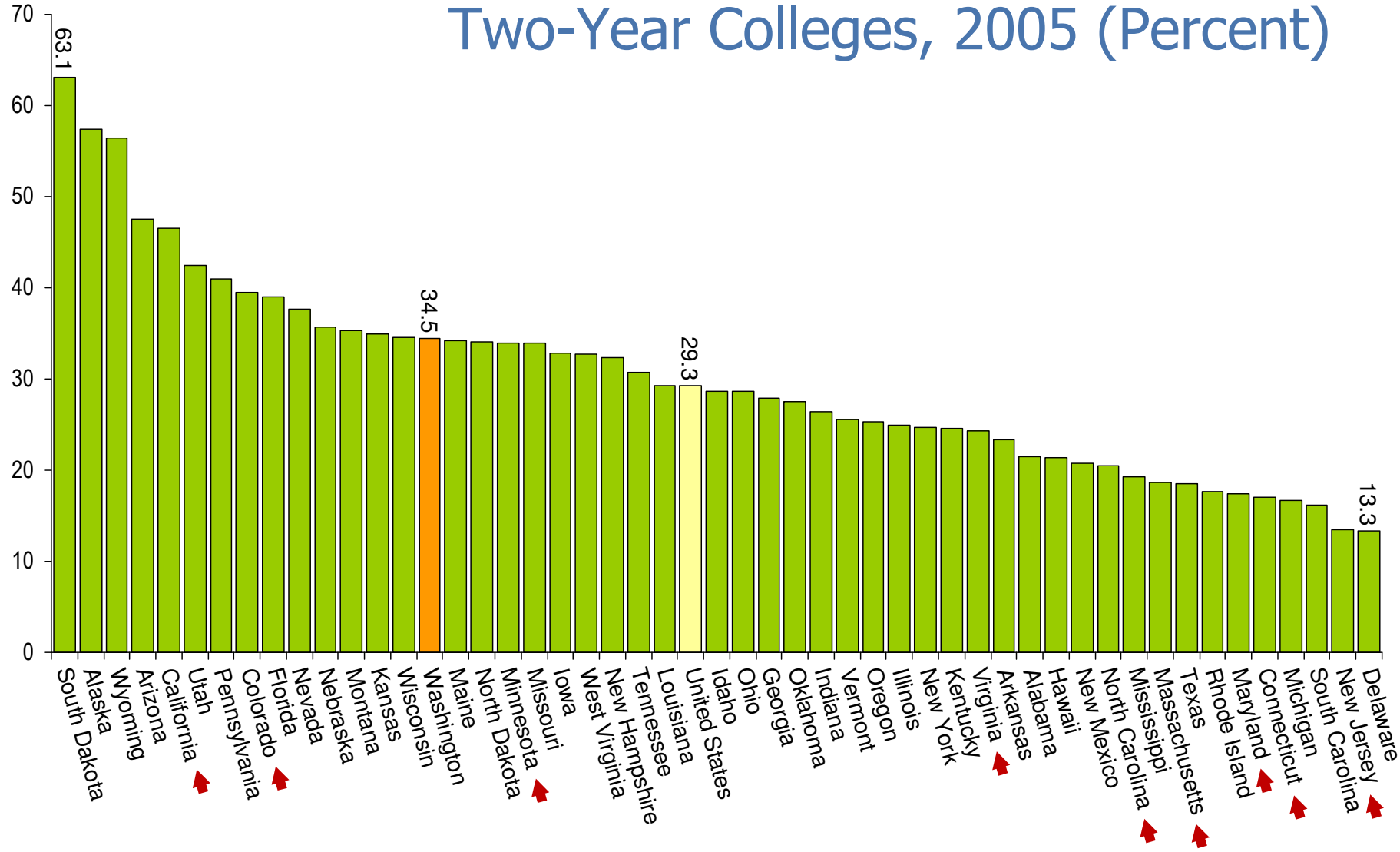
Source: *Postsecondary Education Opportunity #188*, February 2008

Associate Degrees Awarded per 100 High School Graduates Three Years Earlier, 2004



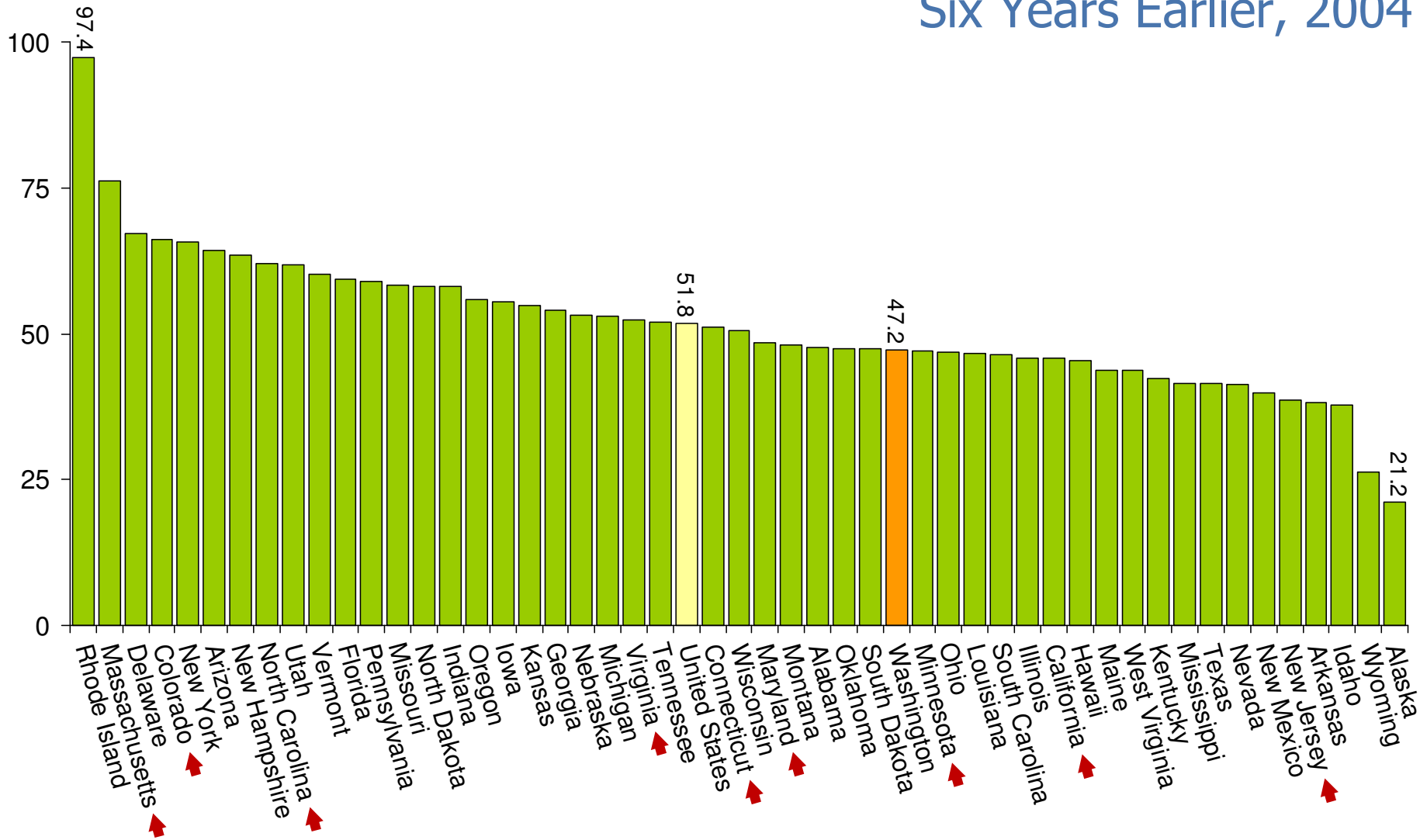
Source: NCES-IPEDS Completions Survey, WICHE

Three-Year Graduation Rates at Two-Year Colleges, 2005 (Percent)



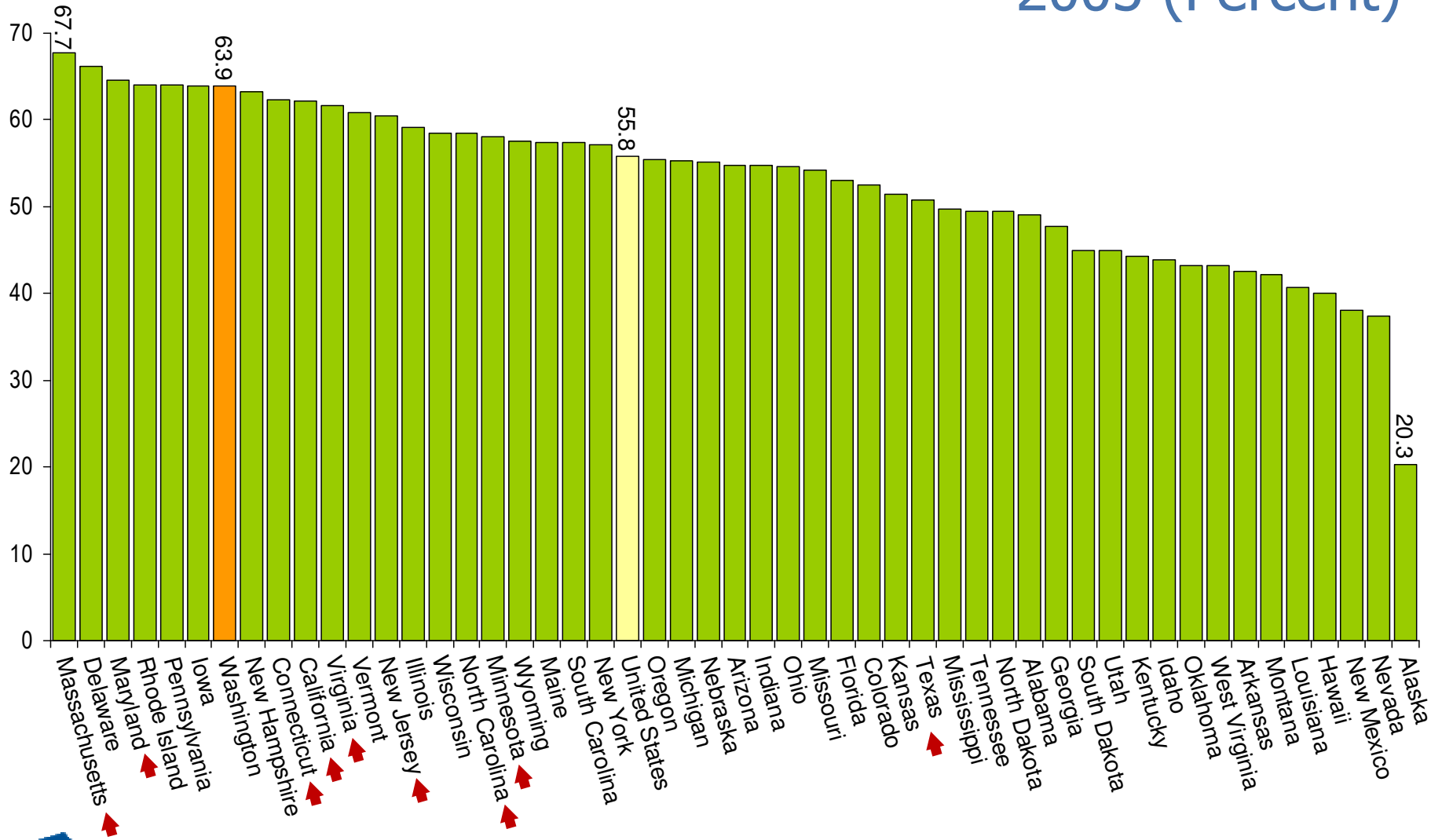
Source: NCES, IPEDS Graduation Rate Survey

Bachelor's Degrees Awarded per 100 High School Graduates Six Years Earlier, 2004



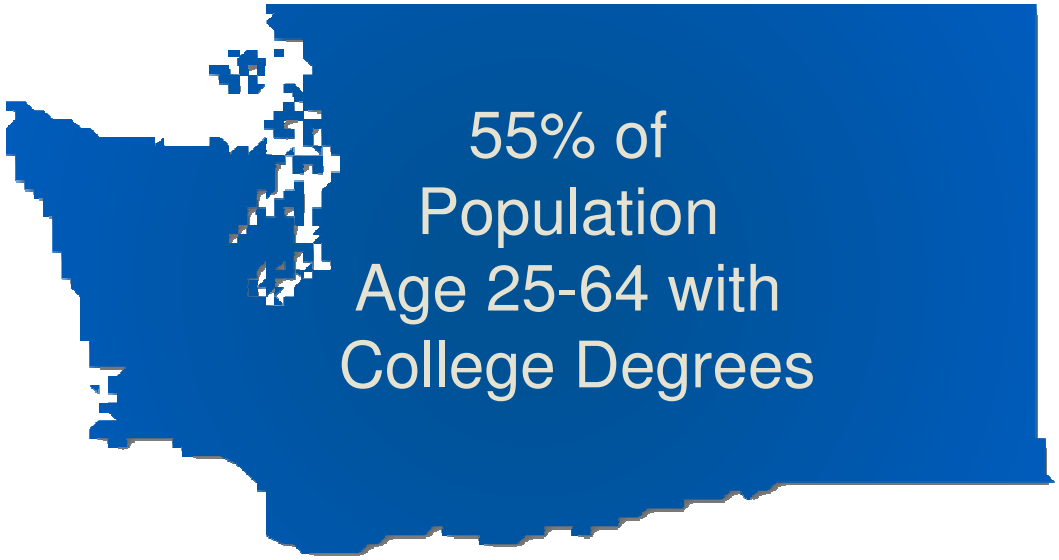
Source: NCES-IPEDS Completions Survey, WICHE

Six-Year Graduation Rates at Four-Year Colleges, 2005 (Percent)



Source: NCES, IPEDS Graduation Rate Survey

The Goal: Washington Reaching International Competitiveness by 2025



Reaching Top Performance by 2025 (55%) – Washington

2,254,808	Number of Individuals to Match Best-Performing Countries (55%)
739,976	Number of Individuals (Age 25-44) Who Already Have Degrees
1,514,832	Additional Production Needed (2005 to 2025)
889,114	Degrees Produced at Current Annual Rate of Production
342,848	Additional Residents with College Degrees from Net Migration
282,870	Additional Degrees Needed
14,144	Additional Degrees Needed per Year (Currently Produce 47,803 in All Sectors)
33.8%	Increase in Annual Associate and Bachelor's Degree Production Needed (in Public Sector Only)

Collective Cost to Washington, Assuming
Tuition Stays the Same

$388 Million = Annual Costs of Additional Students at Current $ per Student

$1.5 Billion = Current State Contribution

26% = Percent Increase in Annual State Support Needed

Average Cost to Students, Assuming
No Additional State Investment

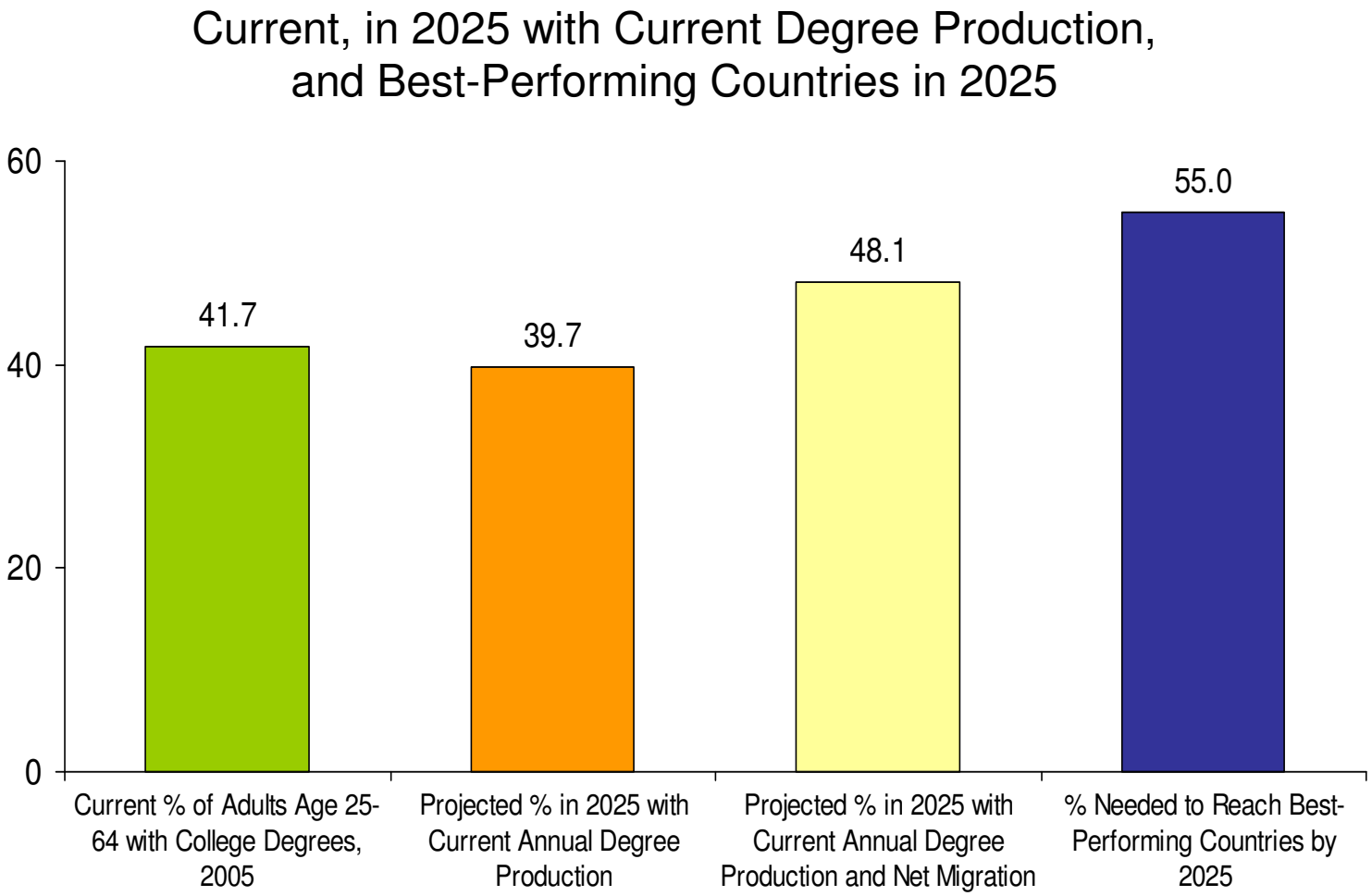
$ 1,776 = Additional Annual Costs to Students at Public Four-Year Institutions

27% Increase in Tuition & Fees
(Currently $6,538)

$ 1,107 = Additional Annual Costs to Students at Public Two-Year Institutions

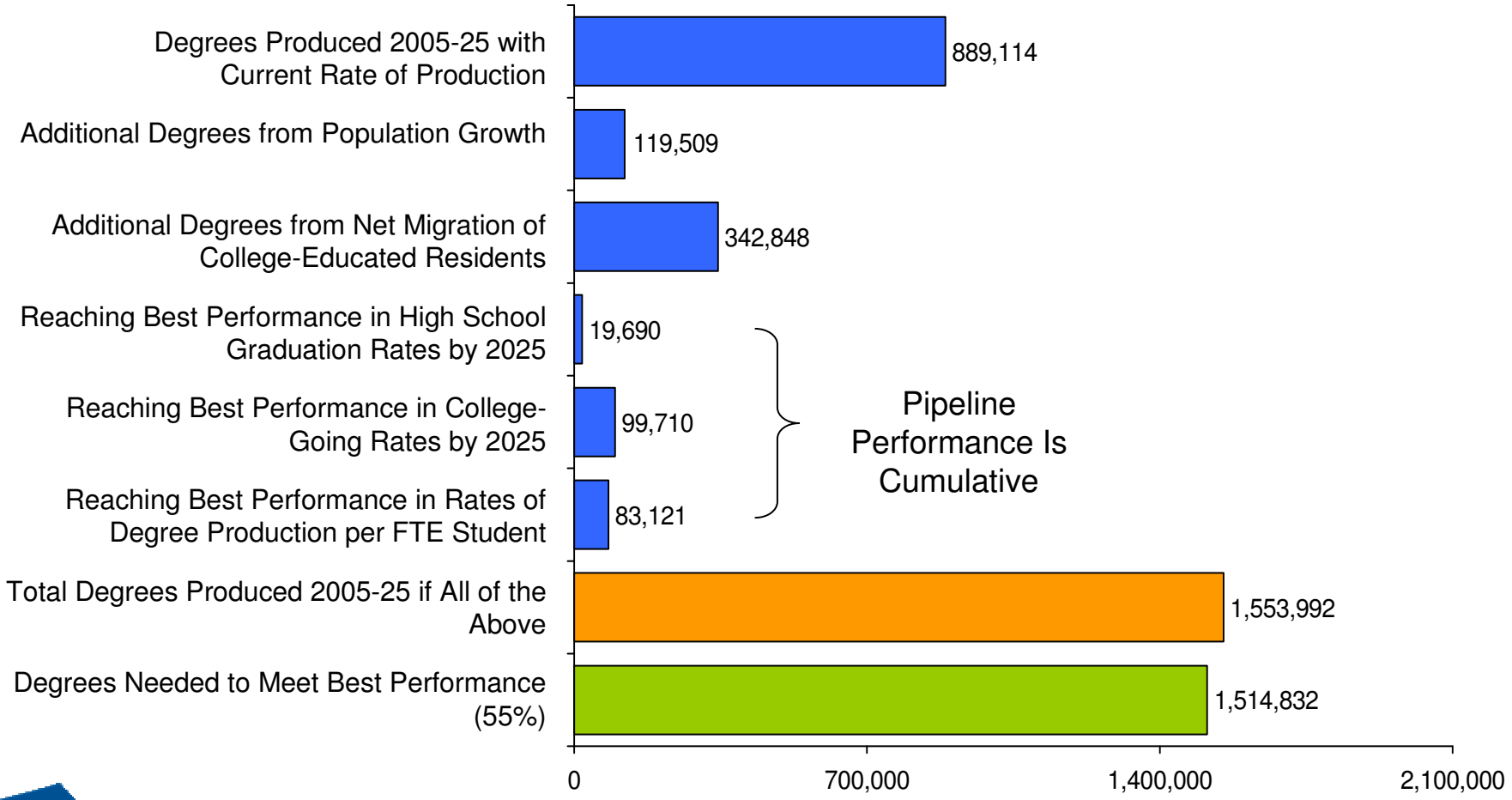
52% Increase in Tuition & Fees
(Currently $2,114)

Educational Attainment in Washington (%)



How Can Washington Reach International Competitiveness?

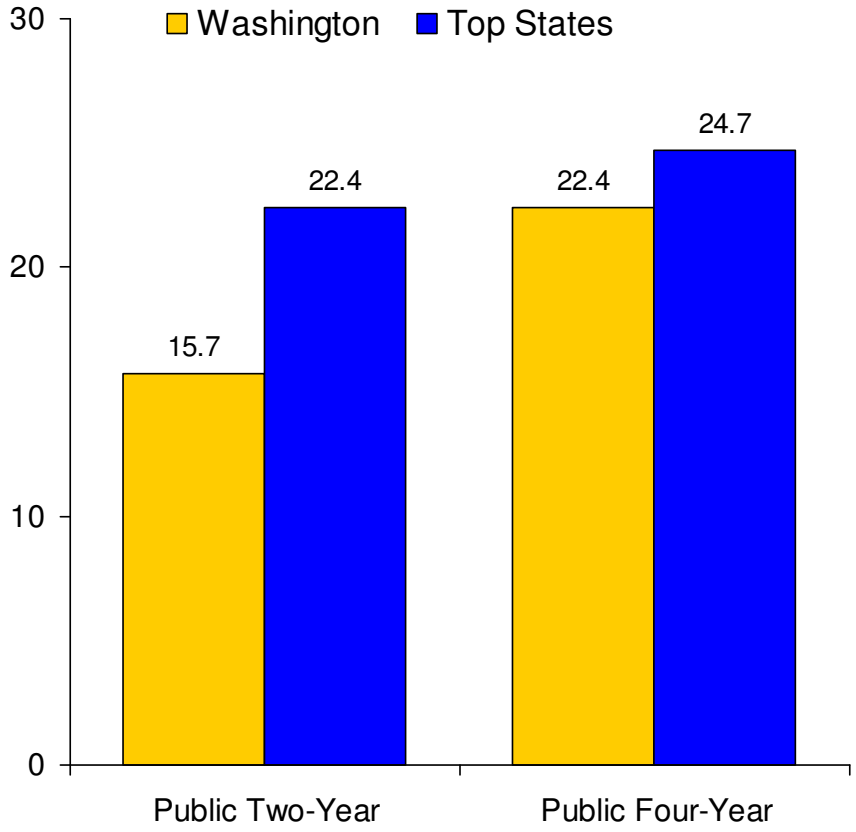
Current Degree Production Combined with Population Growth and Migration, and Improved Performance on Student Pipeline Measures



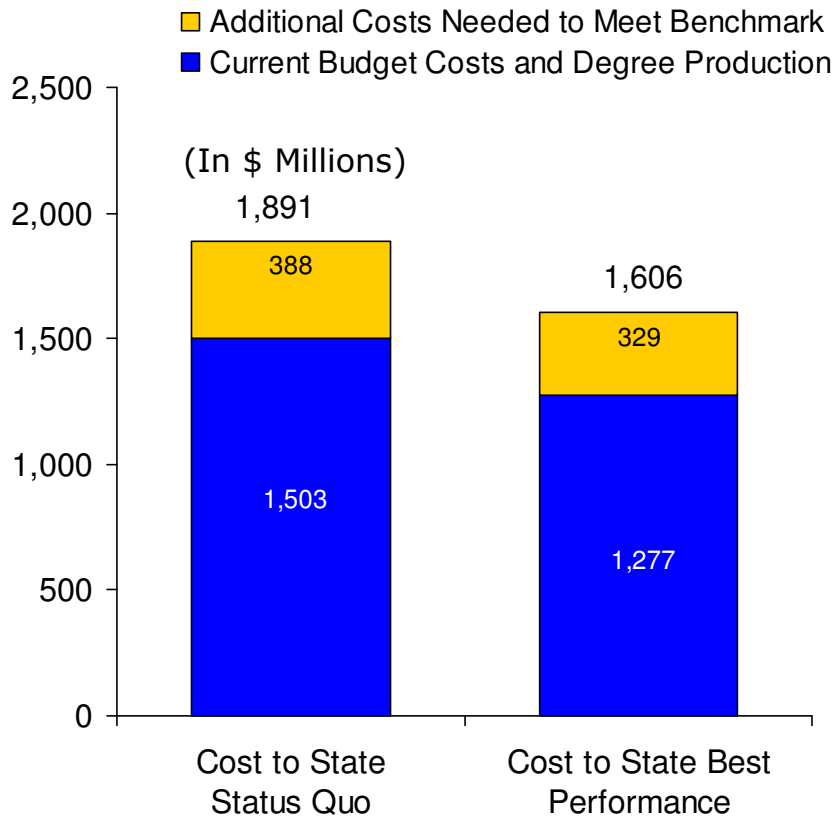
Source: 2005 ACS, PUMS

Savings if Washington Reaches Top Performance in Degree Production

Performance: Undergraduate Degrees Awarded Per 100 Full-Time Equivalent Students

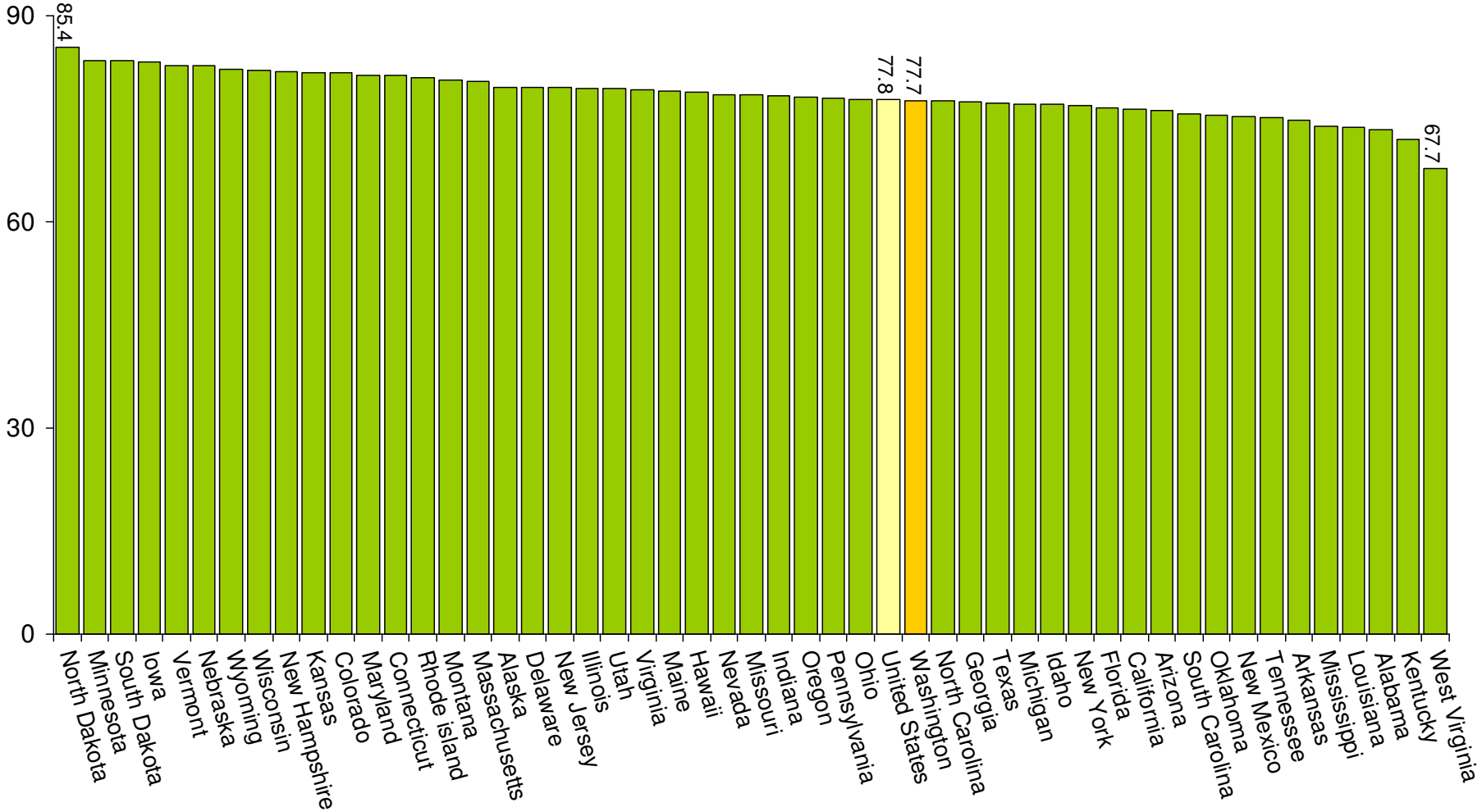


Reduced costs to Washington would be **$285 million** by improving efficiency of degree production to level of top states



WORKFORCE & THE ECONOMY

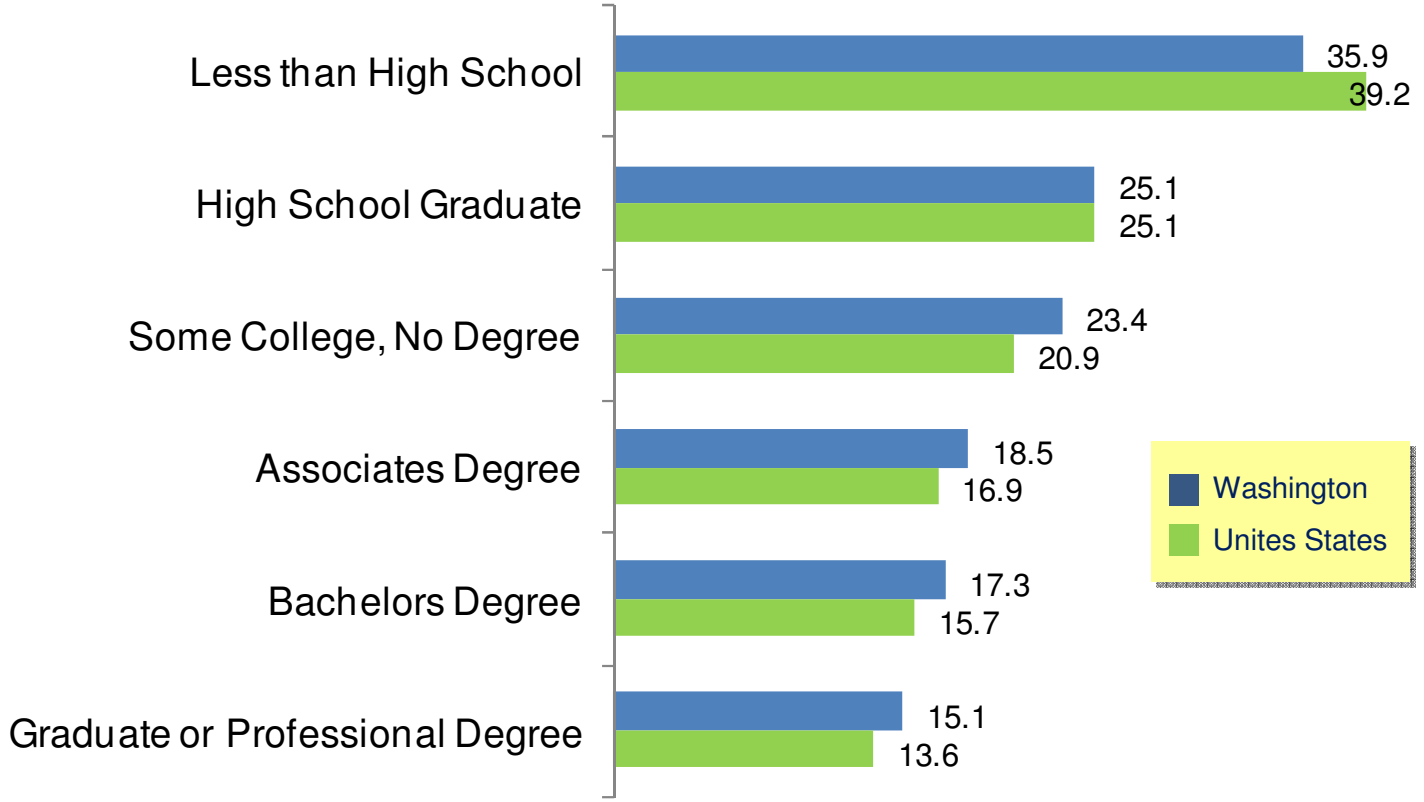
Percent of Civilian Population Age 25-64 Participating in the Workforce, 2005



Source: U.S. Bureau of Labor Statistics

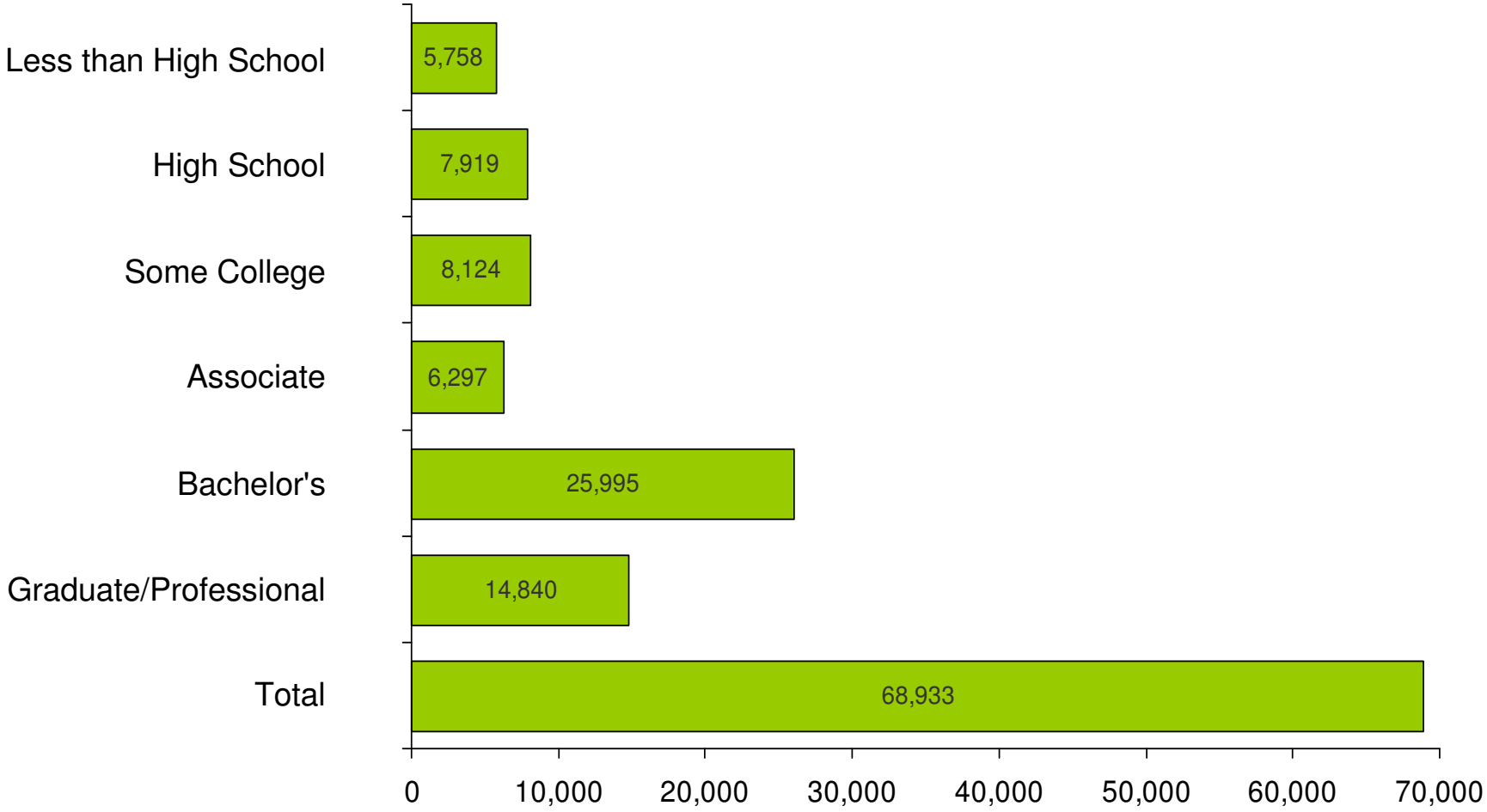
Percent of Civilians Age 25-64 Not in the Workforce, 2006

listed by Education Attainment



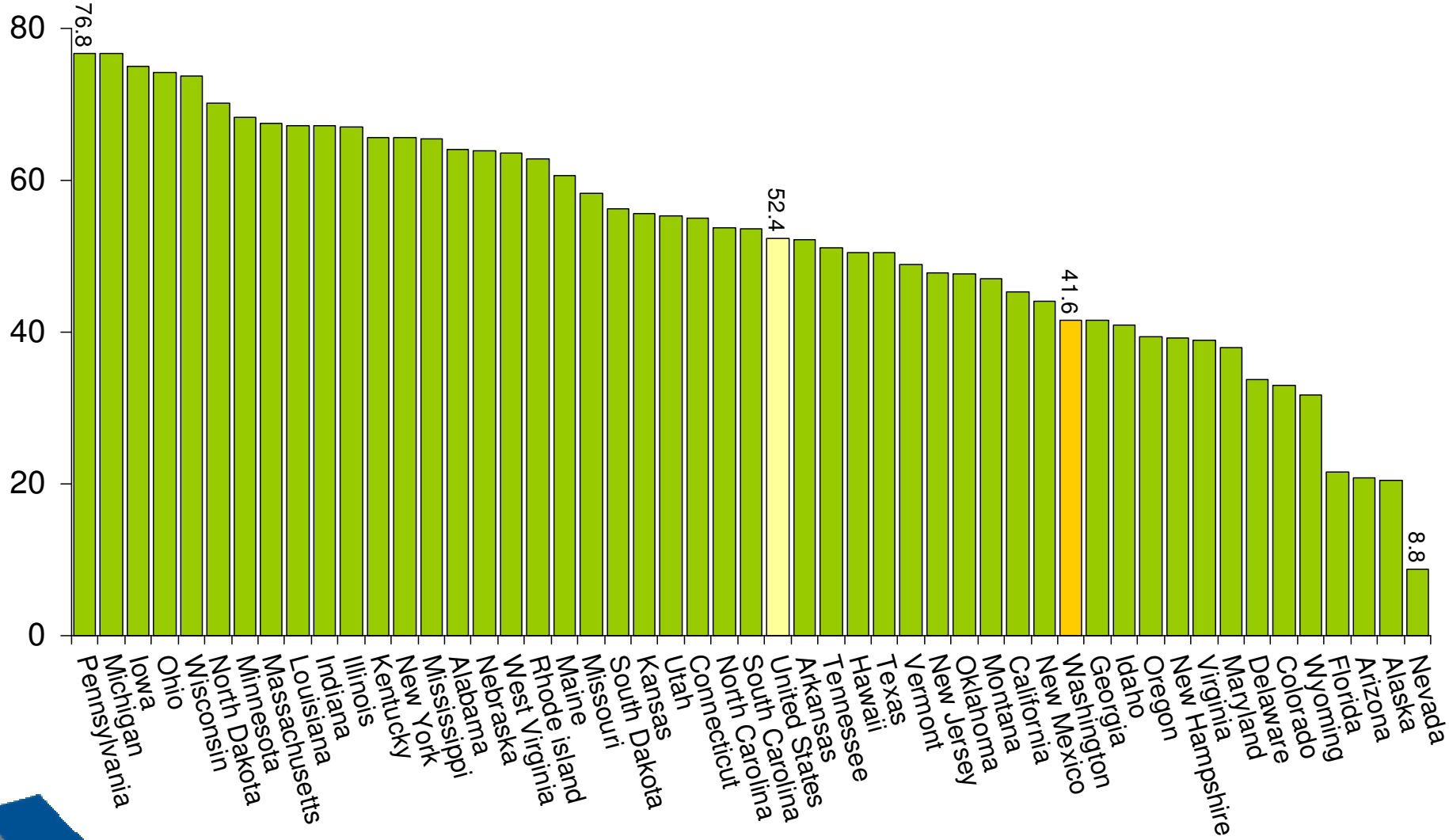
Source: U.S. Census Bureau, 2006 ACS PUMS

Washington Net Migration of Residents Age 22-64 by Level of Education, 2005-06



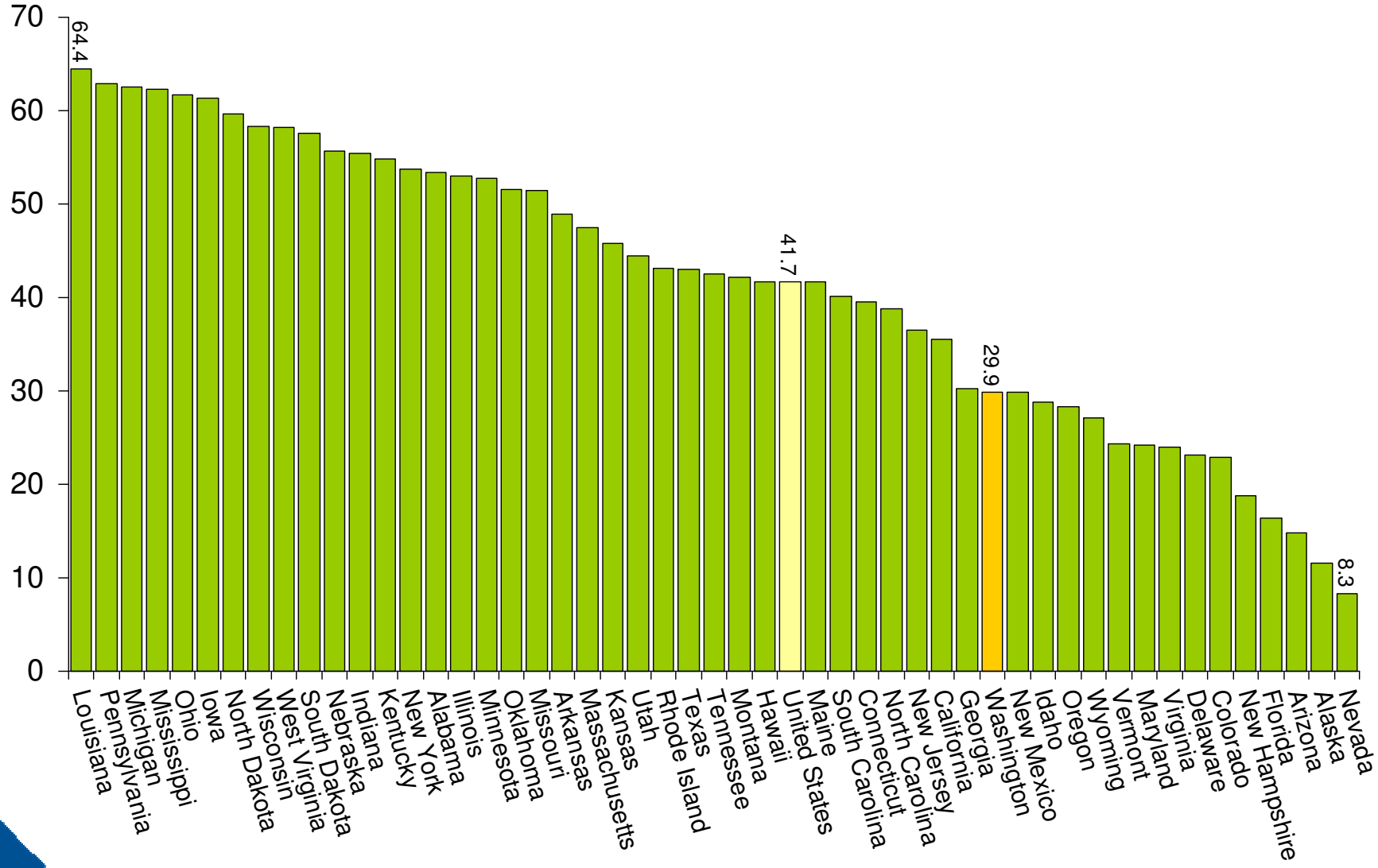
Source: 2006 ACS (PUMS)

Percent of Residents Age 25-64 with an Associate Degree Born In-State, 2005



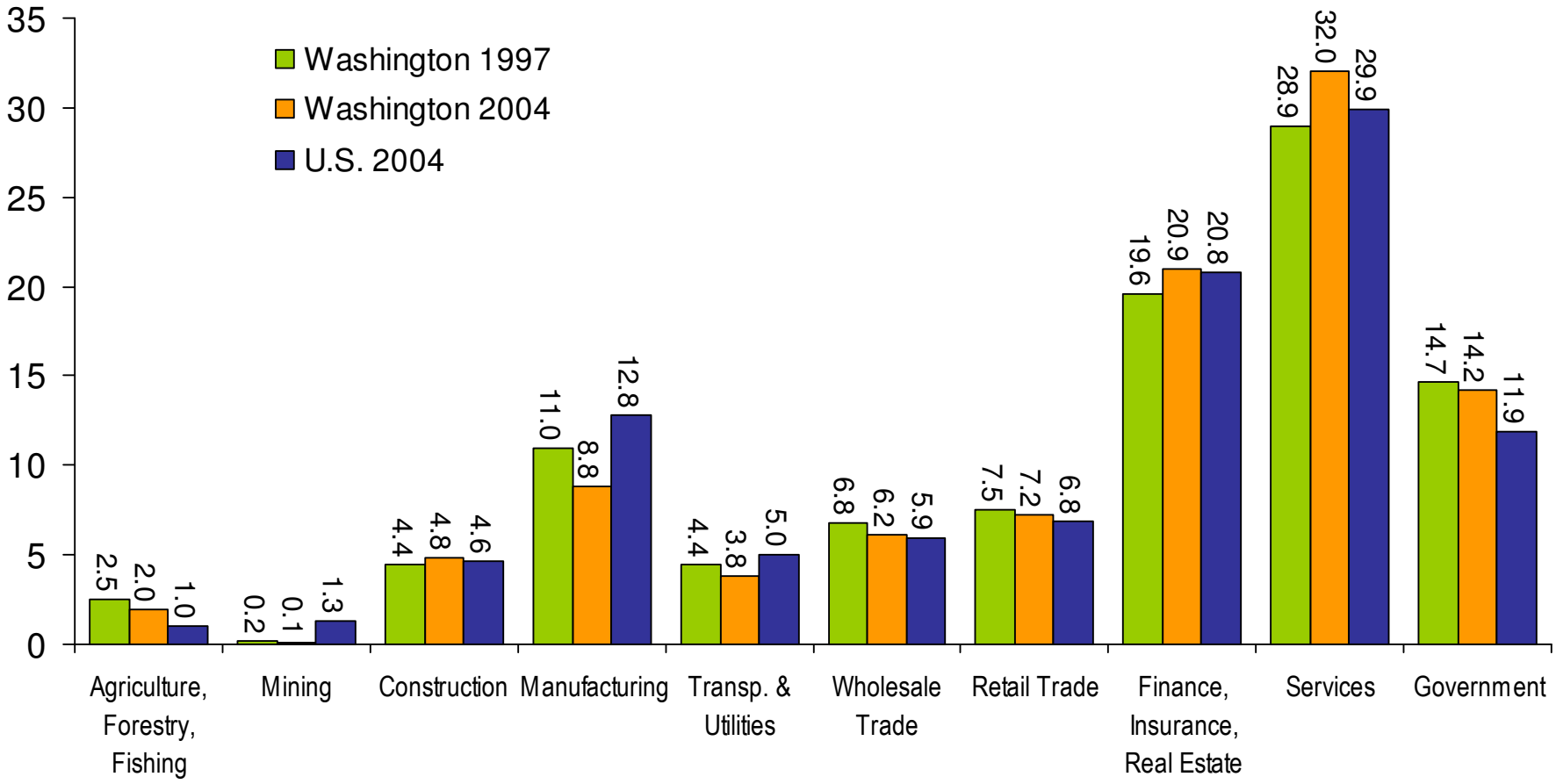
Source: 2005 ACS

Percent of Residents Age 25-64 with a Bachelor's Degree or Higher Born In-State, 2005



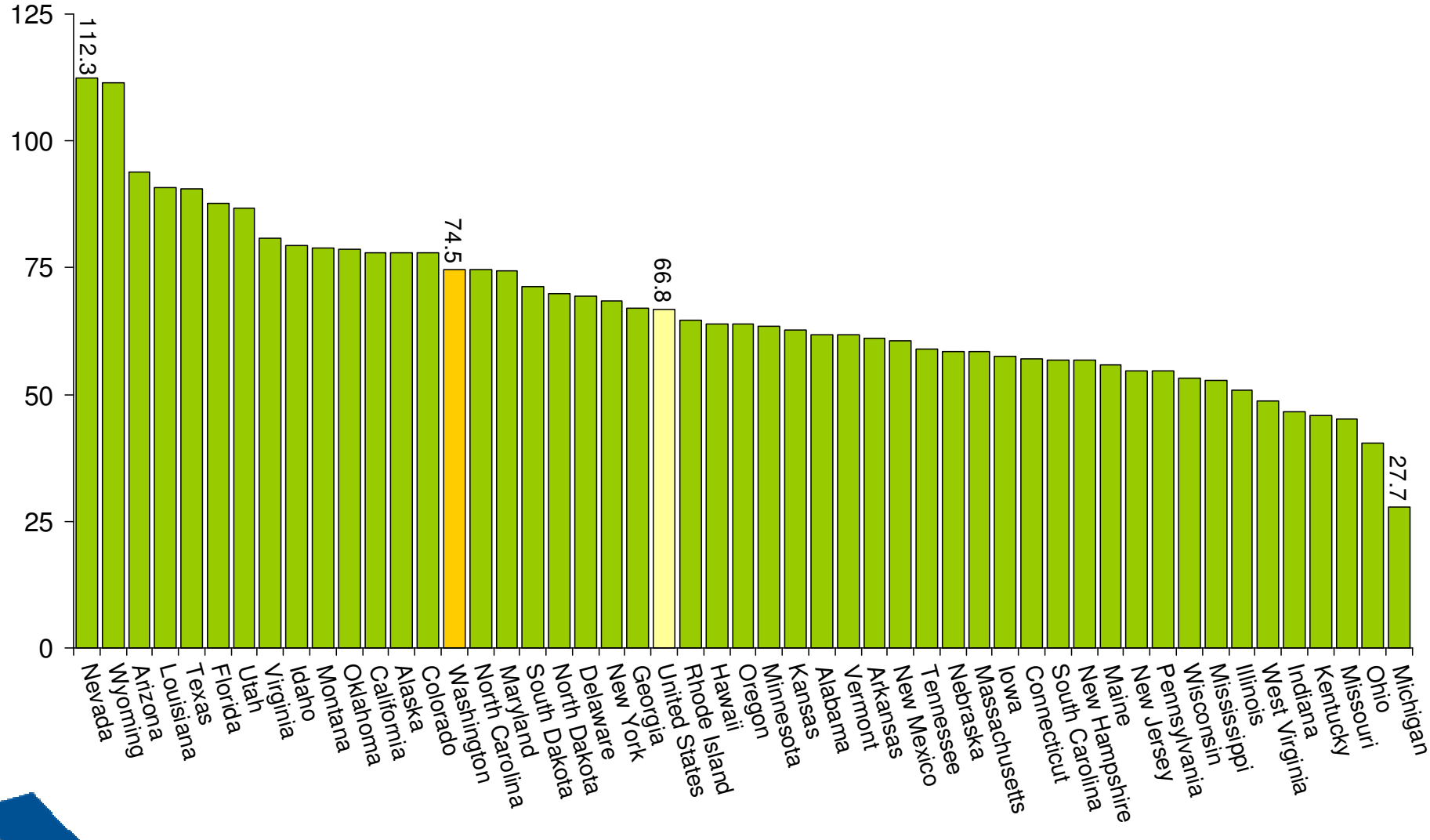
Source: 2005 ACS

Percent of Total Gross State Product by Industry and Comparison to U.S.



Source: Bureau of Labor Statistics

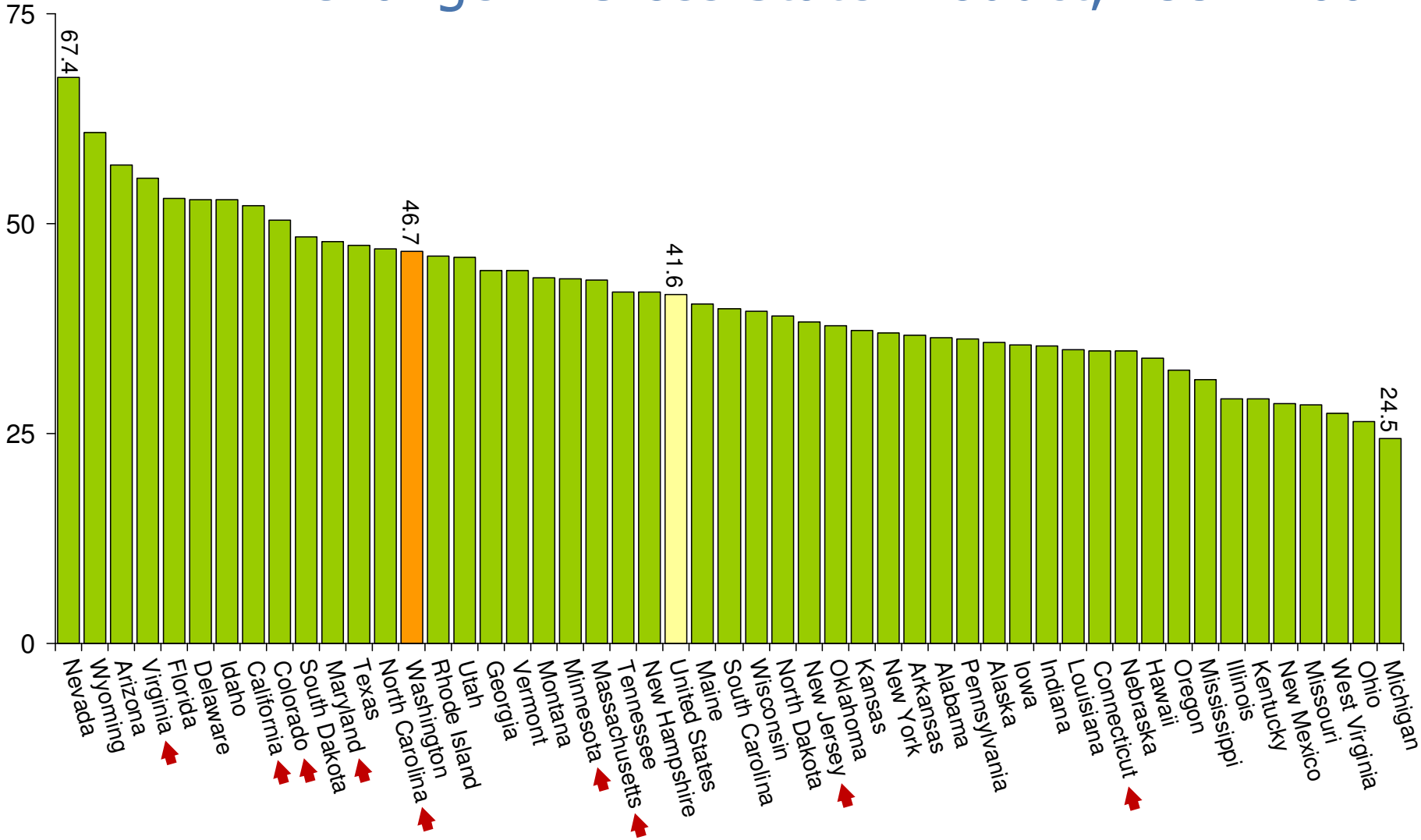
Percent Change in Gross State Product, 1997-2007



NCHEMS

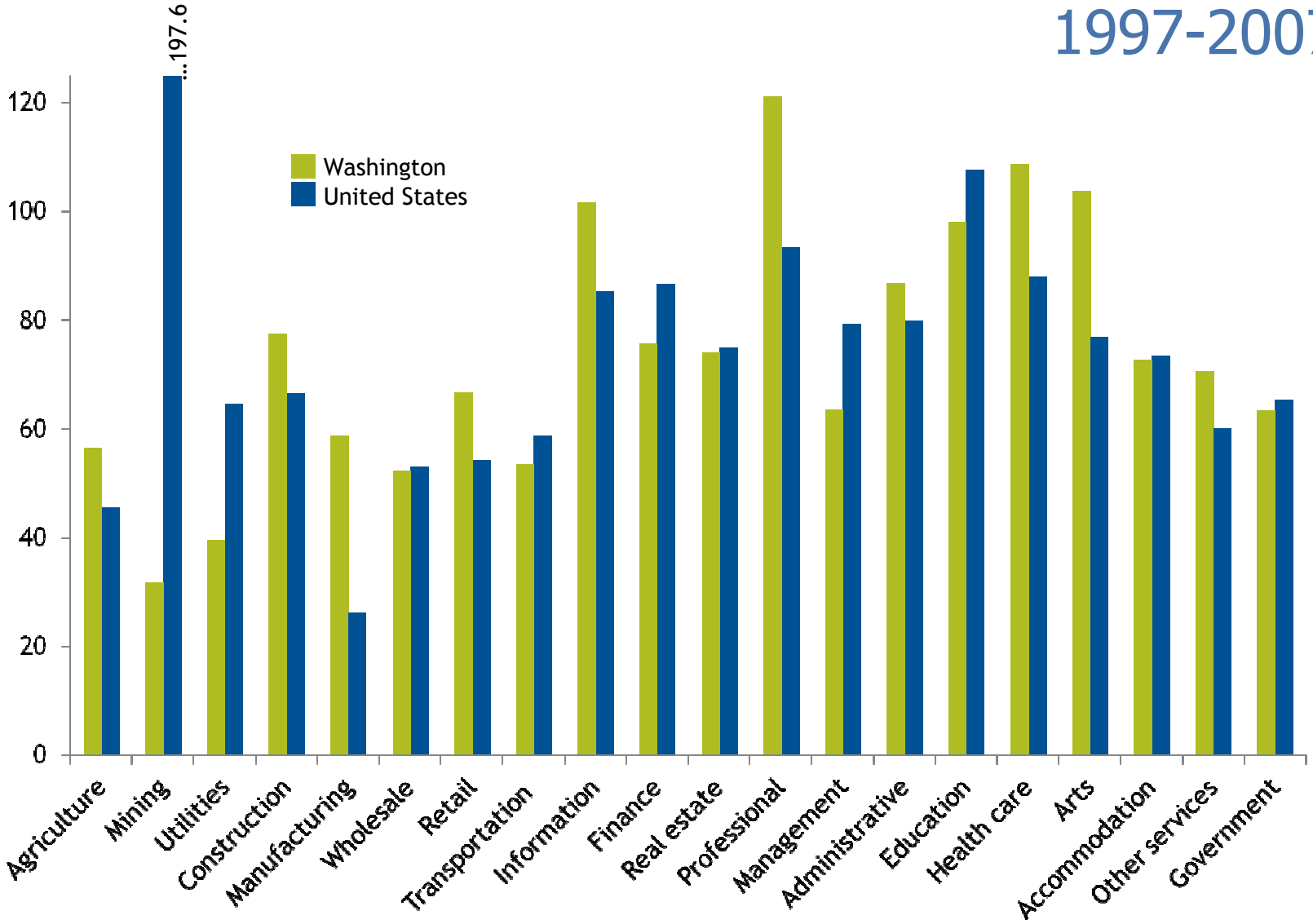
Source: Bureau of Economic Analysis, U.S. Department of Commerce

Change in Gross State Product, 1997-2004



Source: Bureau of Economic Analysis

Gross Domestic Product – Percent Change 1997-2007



Source: Bureau of Economic Analysis, U.S. Department of Commerce

Development Report Card for the States, 2006 - Washington

Overall	
Performance	**B**
Employment	B
Earnings & Job Quality	C
Equity	C
Quality of Life	B
Resource Efficiency	A
Business Vitality	**D**
Competitiveness/Existing Businesses	F
Entrepreneurial Energy	C
Development Capacity	**A**
Human Resources	C
Financial Resources	A
Infrastructure Resources	B
Amenity Resources & Natural Capital	B
Innovation Assets	B

Washington Strengths
(Top 10 Rankings)

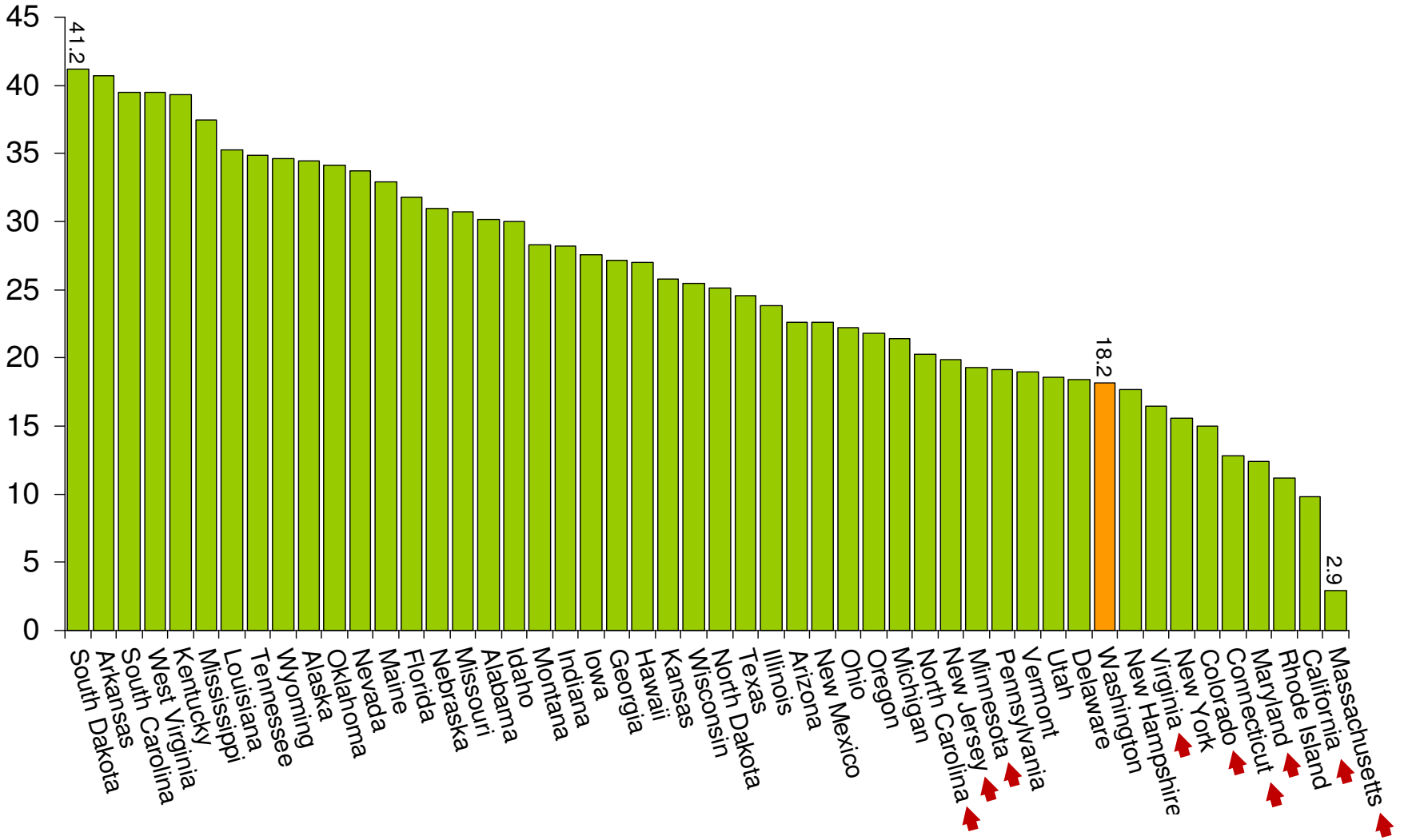
Rank	Measure
1	Technology Industry Employment
1	Employment Growth: Short Term
2	Change in Renewable Energy
2	New Companies
3	Renewable Energy
3	Venture Capital Investments
4	Households with Computers
4	Urban Mass Transit
4	Private Research & Development
5	Energy Costs
9	Change in Basic Educational Skills Proficiency – Math
9	Heart Disease
9	Employment Growth: Long Term
9	Toxic Release Inventory
10	Average Annual Pay
10	Vehicle Miles Traveled
10	Royalties and Licenses
10	Greenhouse Gas Emissions
10	Basic Educational Skills Proficiency – Math
10	PhD Scientists and Engineers
10	Strength of Traded Sector

Washington Weaknesses
(Bottom 10 Rankings)

Rank	Measure
43	Homeownership Rate
43	Unemployment Rate
44	Average Annual pay Growth
44	Graduate Students in Science and Engineering
45	Involuntary Part-Time Employment
45	Crime Rate
47	Change in Poverty Rate
47	Change in Venture Capital Investments
47	Change in Uninsured Low Income Children
47	Five Year Change in New Companies
48	Manufacturing Investment
48	Change in New Companies
48	Job Creation by Start-up Businesses
49	Change in High School Attainment
49	Change in Energy Costs
50	Change in Average Annual Pay
50	Business Closings

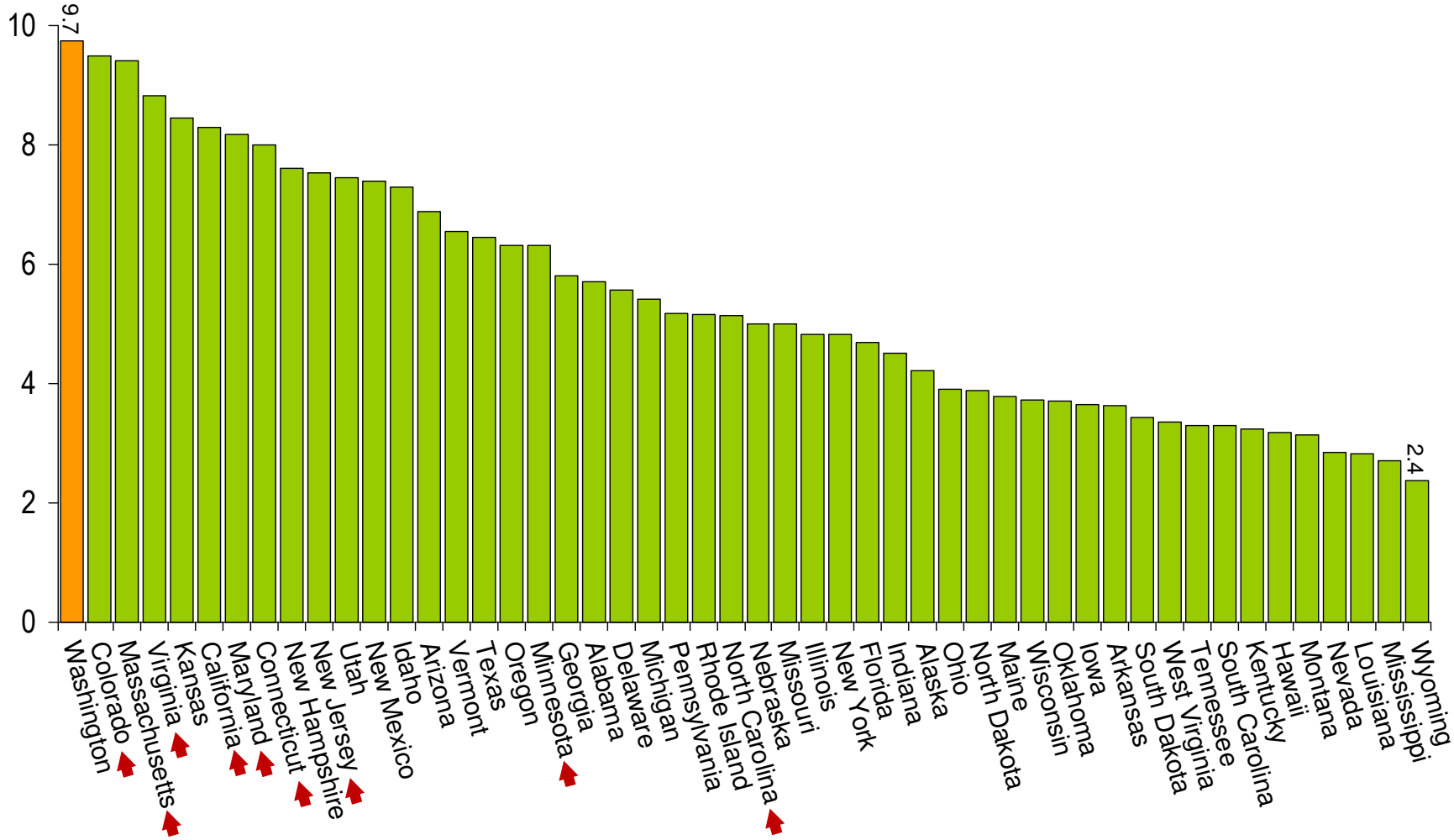
Source: 2006 Development Report Card for the States, CFED

Overall State Scores on Measures of Innovation Assets, 2004



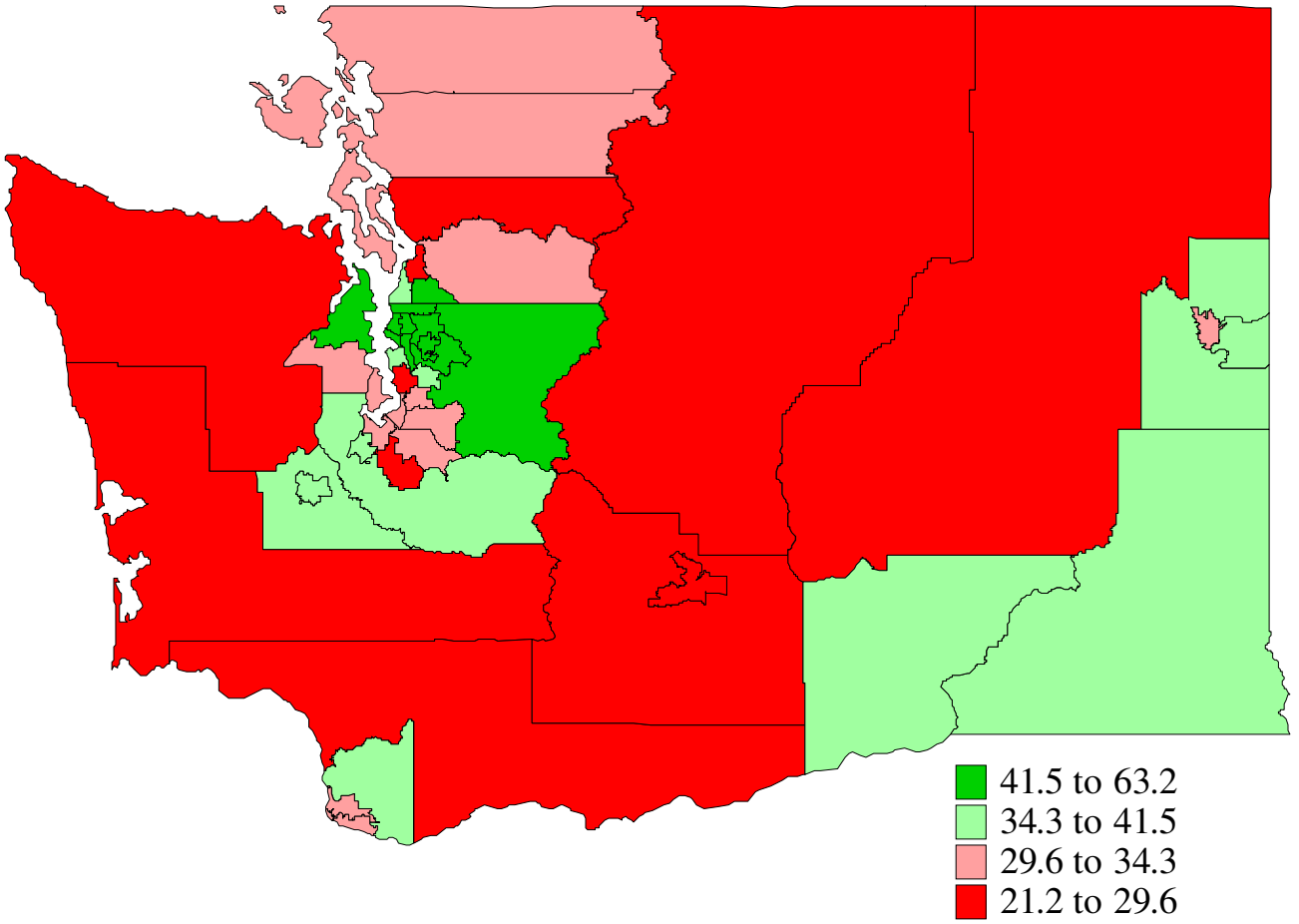
Source: *Development Report Card for the States*, CFED

Employment in High-Technology Establishments as Share of Total Employment by State, 2004



Source: U.S. Bureau of Labor Statistics, Corporation for Enterprise Development (CFED)

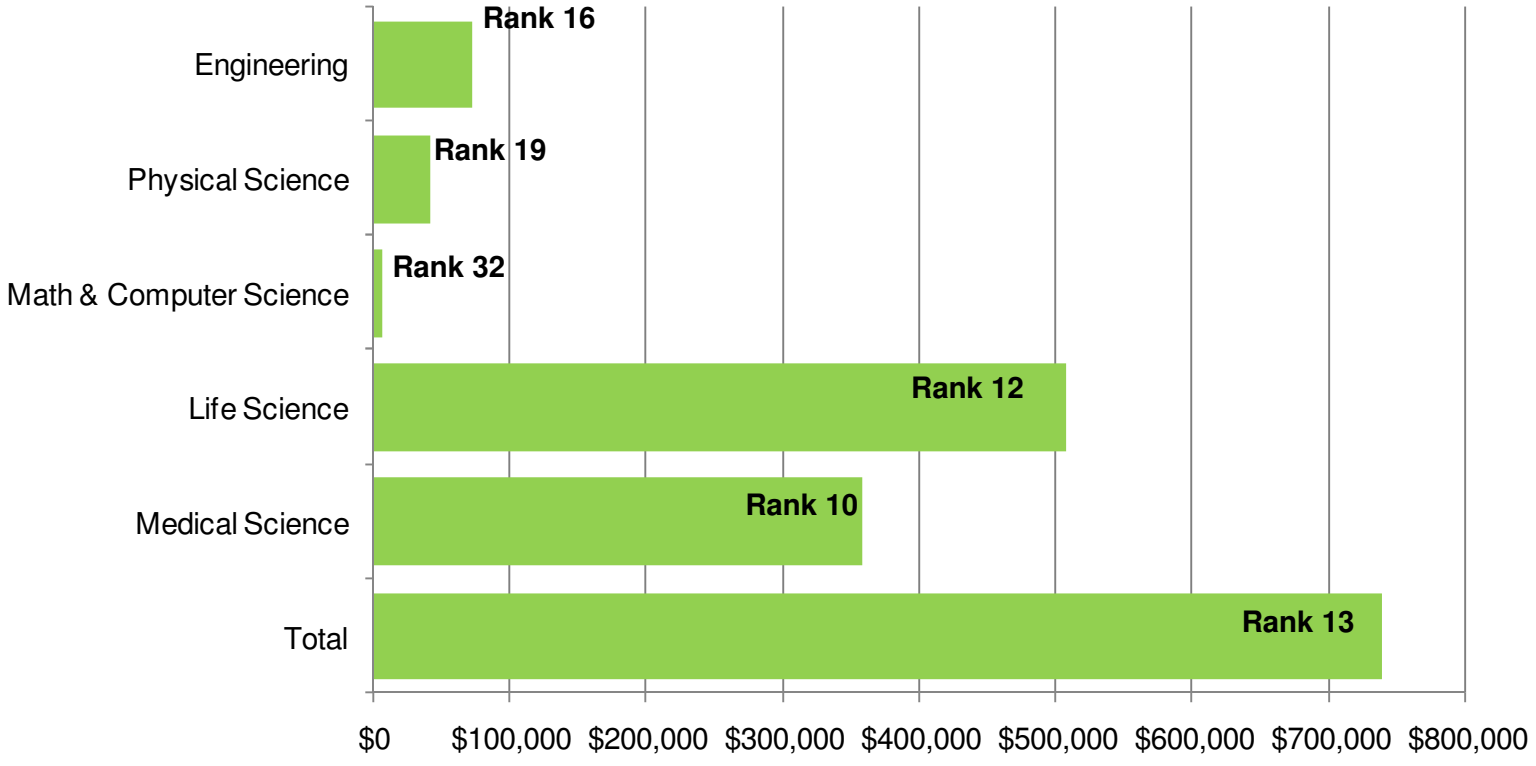
Percent Employment in Management and Professional Occupations, 2006 - PUMAs



Washington = 36.7%
Source: U.S. Census Bureau, 2006 ACS

Federal Research & Expenditures

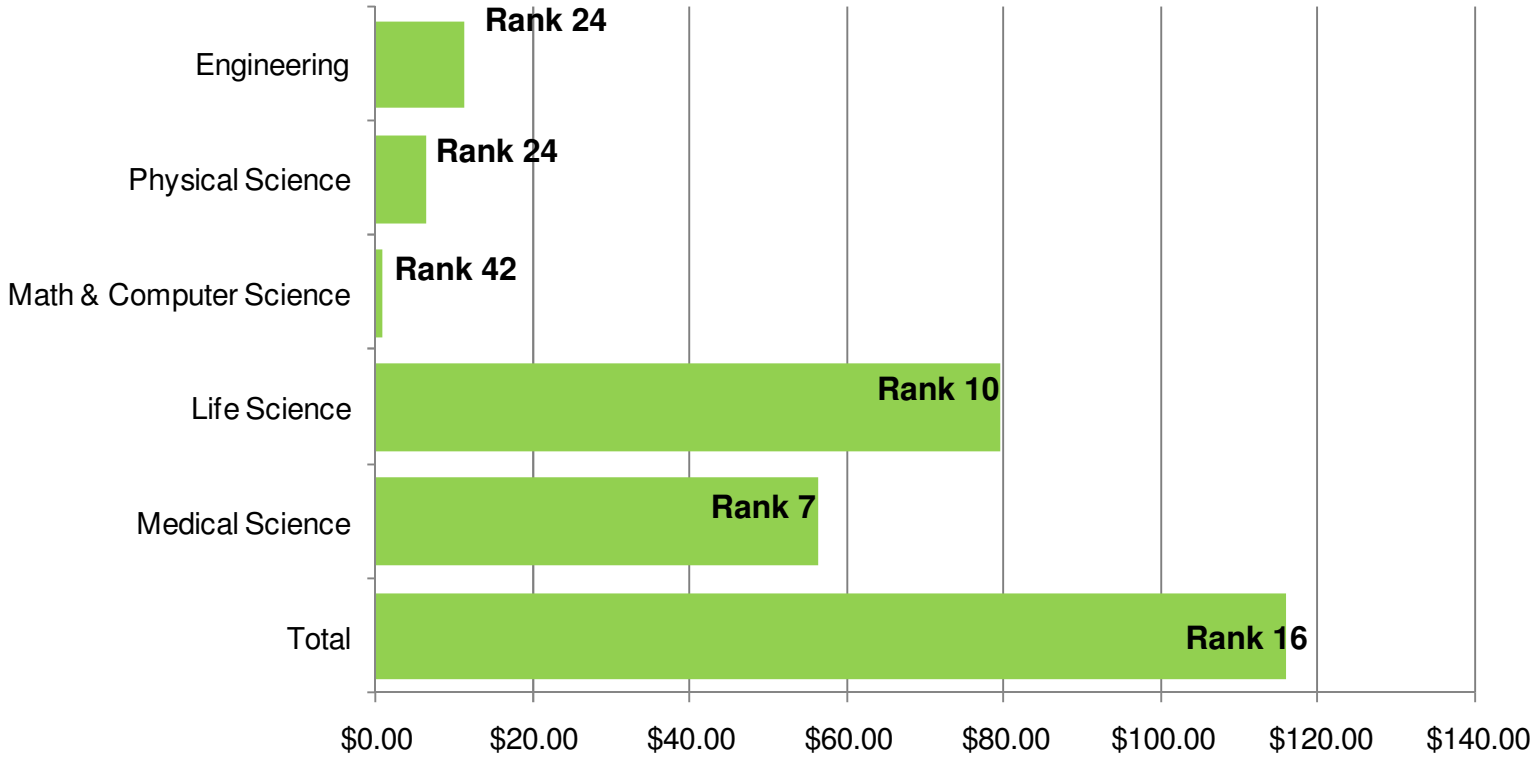
Washington, 2006



Source: National Science Foundation

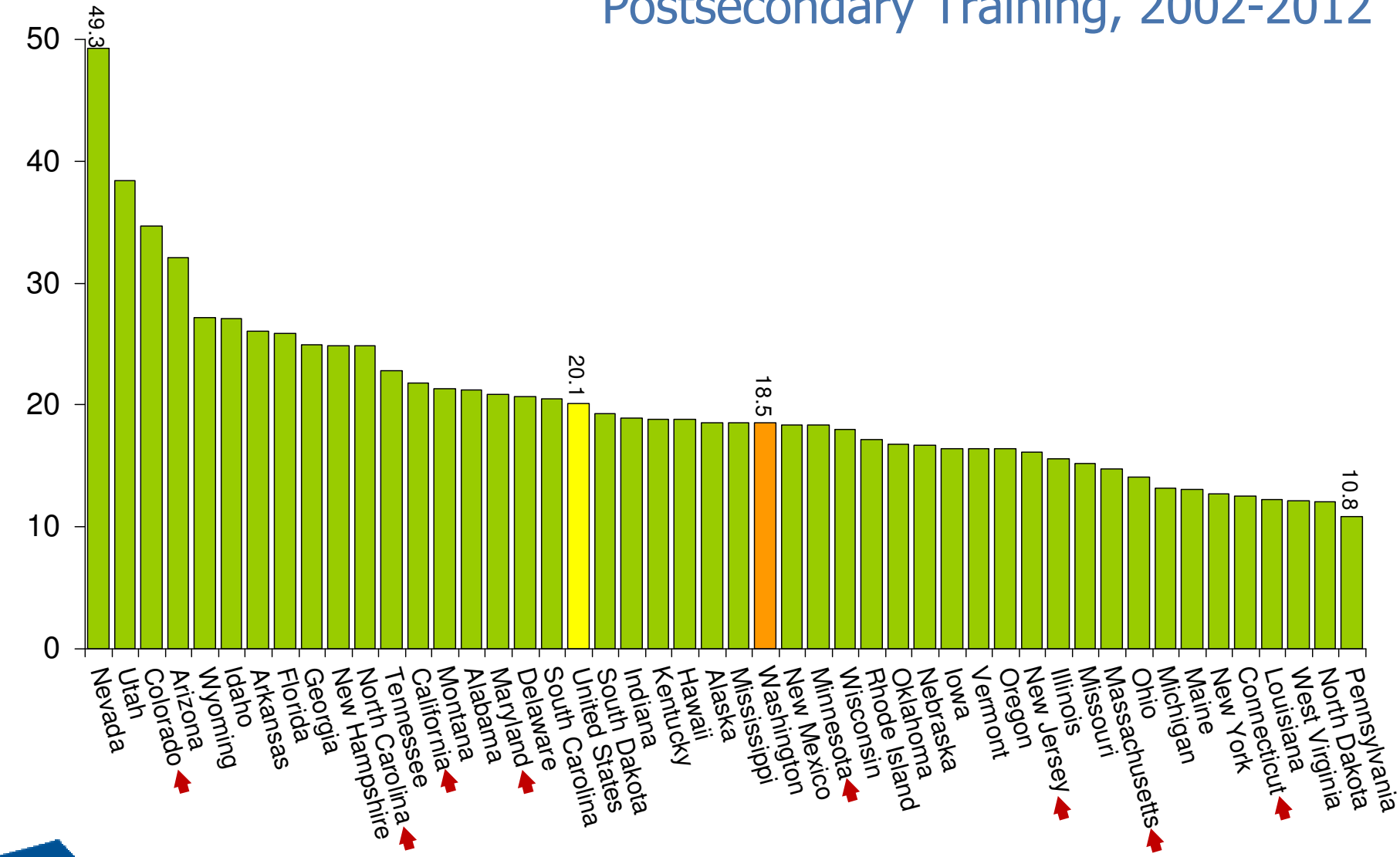
Federal Research & Expenditures per Capita

Washington, 2006



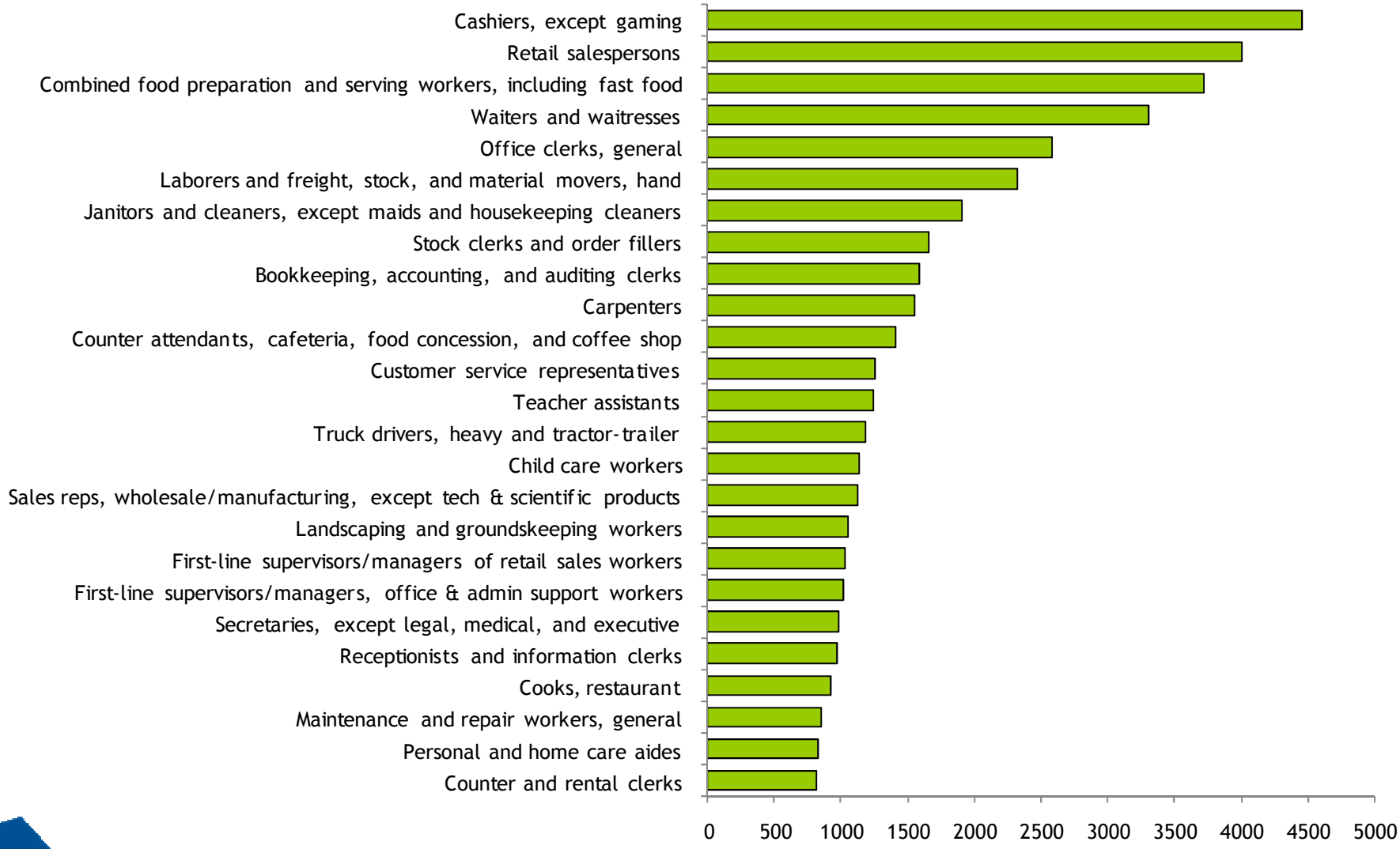
Source: National Science Foundation

Projected Percent Change in Occupations Requiring Some Postsecondary Training, 2002-2012



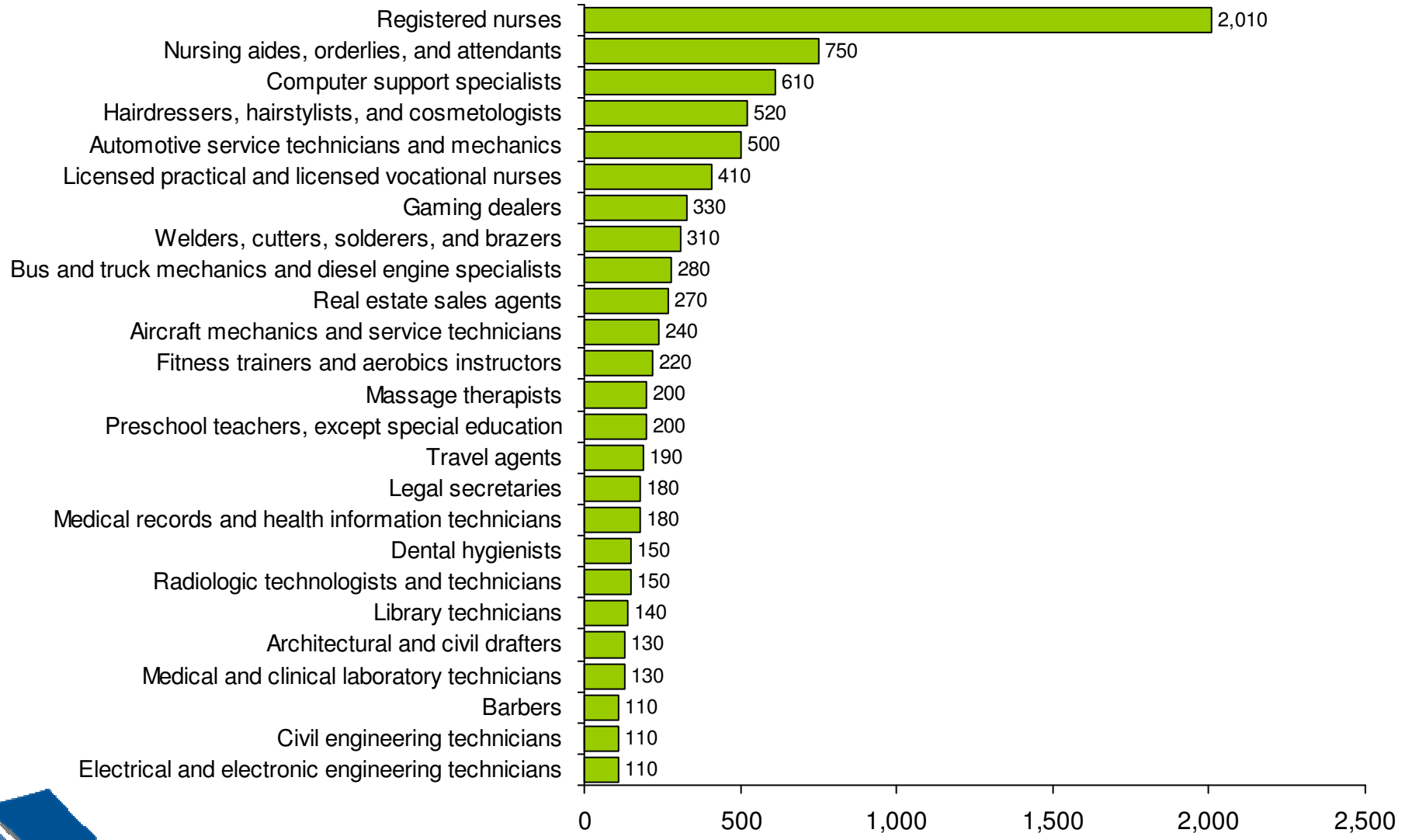
Note: Some college, Associate, Bachelor's and higher.
Source: ACINet, *Career InfoNet*

Occupations with Most Average Annual Openings, from 2004-2014, No Post-secondary Education Required, Washington



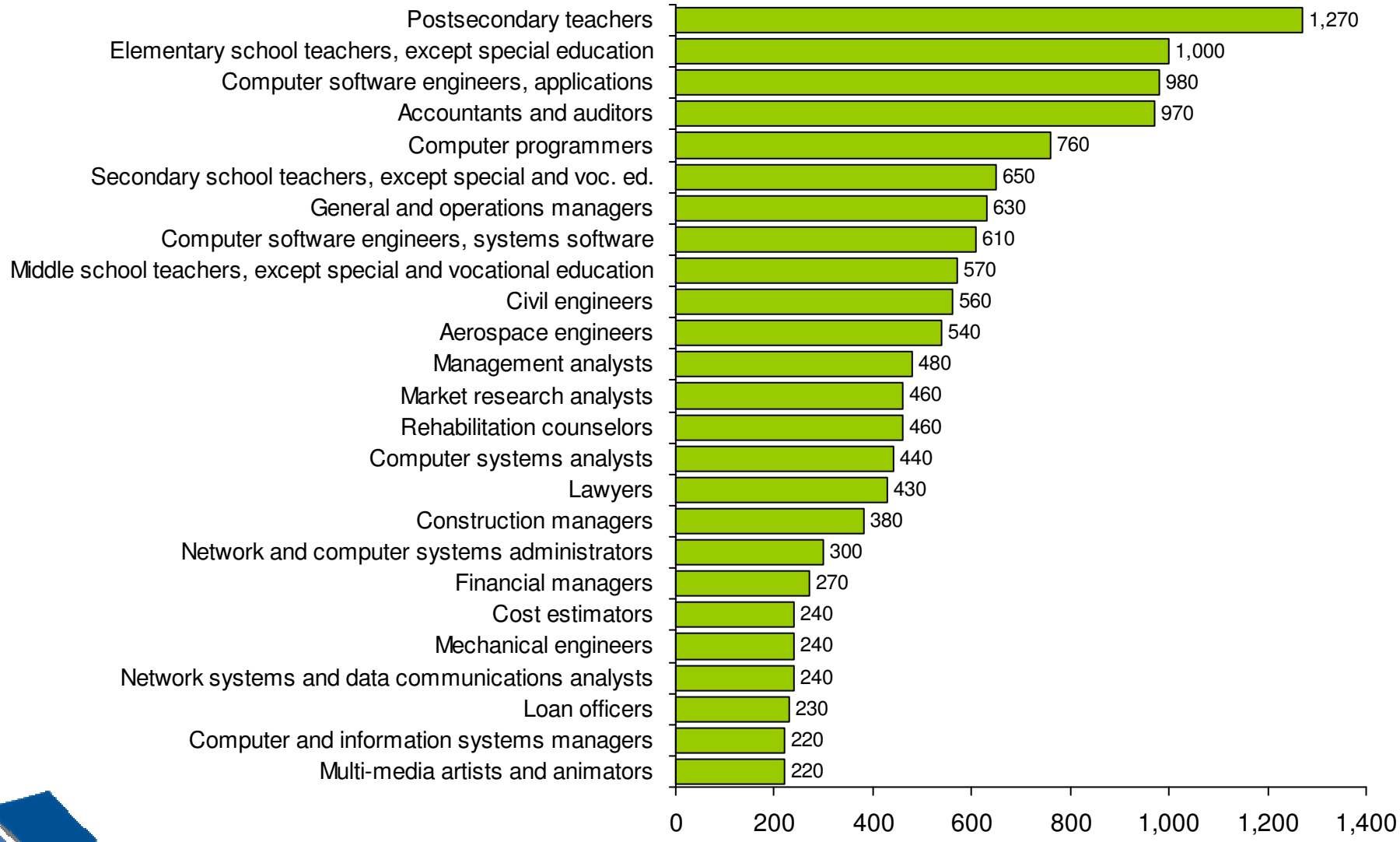
Source: ACINET

Occupations with Most Average Annual Openings, from 2004 to 2014 - Some College or Associate Degree Required



Source: ACINET

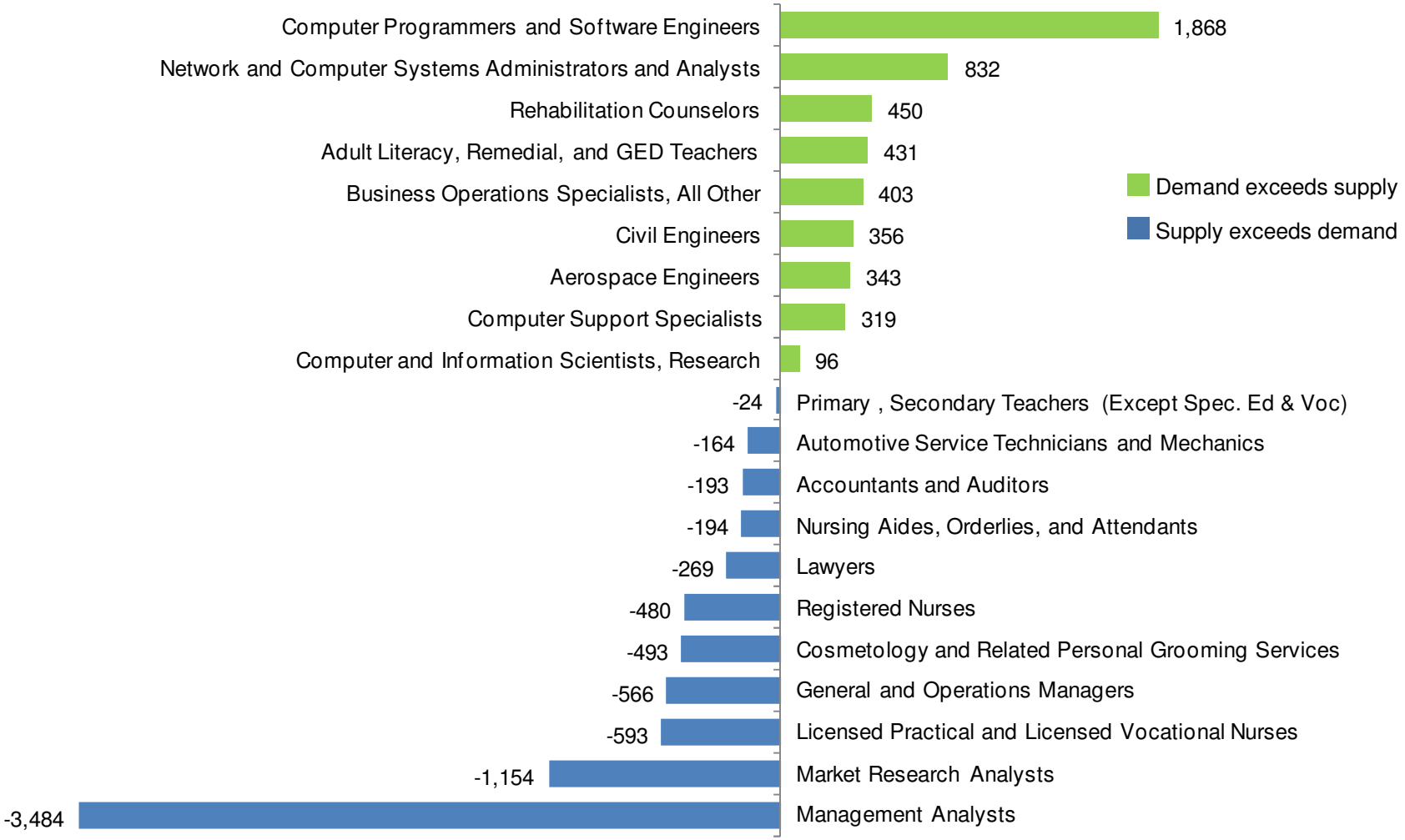
Occupations with Most Average Annual Openings, from 2004 to 2014 - Bachelor's Degree or Higher Required



Source: ACINET

Washington Supply Gap in High Demand Occupations

(Average Annual Openings Less Average Annual Postsecondary Awards)



Sources: Washington State Employment Security Department, Workforce Explorer, State of Washington Occupation Projections 2006-16; www. workforceexplorer.com. NCES, IPEDS 2005, 2006, and 2007 Completions Files; c2005_a and c2006_a Final Release Data Files, c2007_a Early Release Data File.

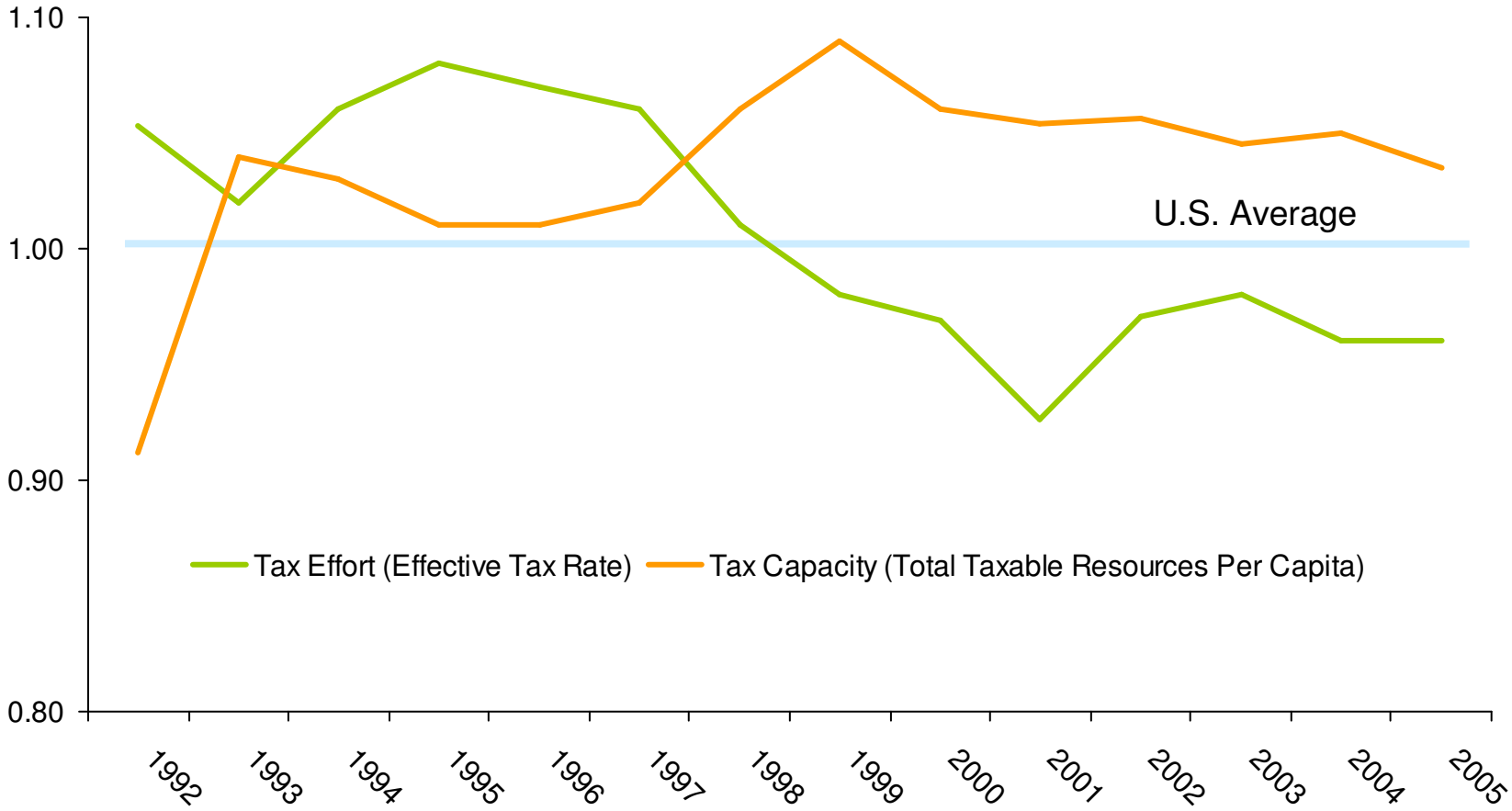
Gap Between Supply & Demand in Selected Occupations
(Average Annual Openings 2006-16 vs. Current Annual Degree Production)

Occupation	Average Annual Openings	Degrees/Certificates Produced Annually	Gap Between Supply & Demand
Computer Programmers and Software Engineers	2,735	867	1,868
Network and Computer Systems Administrators and Analysts	1,686	854	832
Rehabilitation Counselors	472	22	450
Adult Literacy, Remedial, and GED Teachers	767	336	431
Business Operations Specialists, All Other	664	261	403
Civil Engineers	675	318	356
Aerospace Engineers	425	82	343
Computer Support Specialists	1,082	763	319
Computer and Information Scientists, Research	98	2	96
Primary & Secondary Teachers (Except Spec. Ed & Vocational)	2,349	2,373	-24
Automotive Service Technicians and Mechanics	438	601	-164
Accountants and Auditors	901	1,094	-193
Nursing Aides, Orderlies, and Attendants	764	958	-194
Lawyers	549	817	-269
Registered Nurses	2,033	2,513	-480
Cosmetology and Related Personal Grooming Services	802	1,295	-493
General and Operations Managers	712	1,278	-566
Licensed Practical and Licensed Vocational Nurses	517	1,110	-593
Market Research Analysts	316	1,470	-1,154
Management Analysts	549	4,033	-3,484

Sources: Washington State Employment Security Department, Workforce Explorer, State of Washington Occupation Projections 2006-16; www. workforceexplorer.com. NCES, IPEDS 2005, 2006, and 2007 Completions Files; c2005_a and c2006_a Final Release Data Files, c2007_a Early Release Data File.

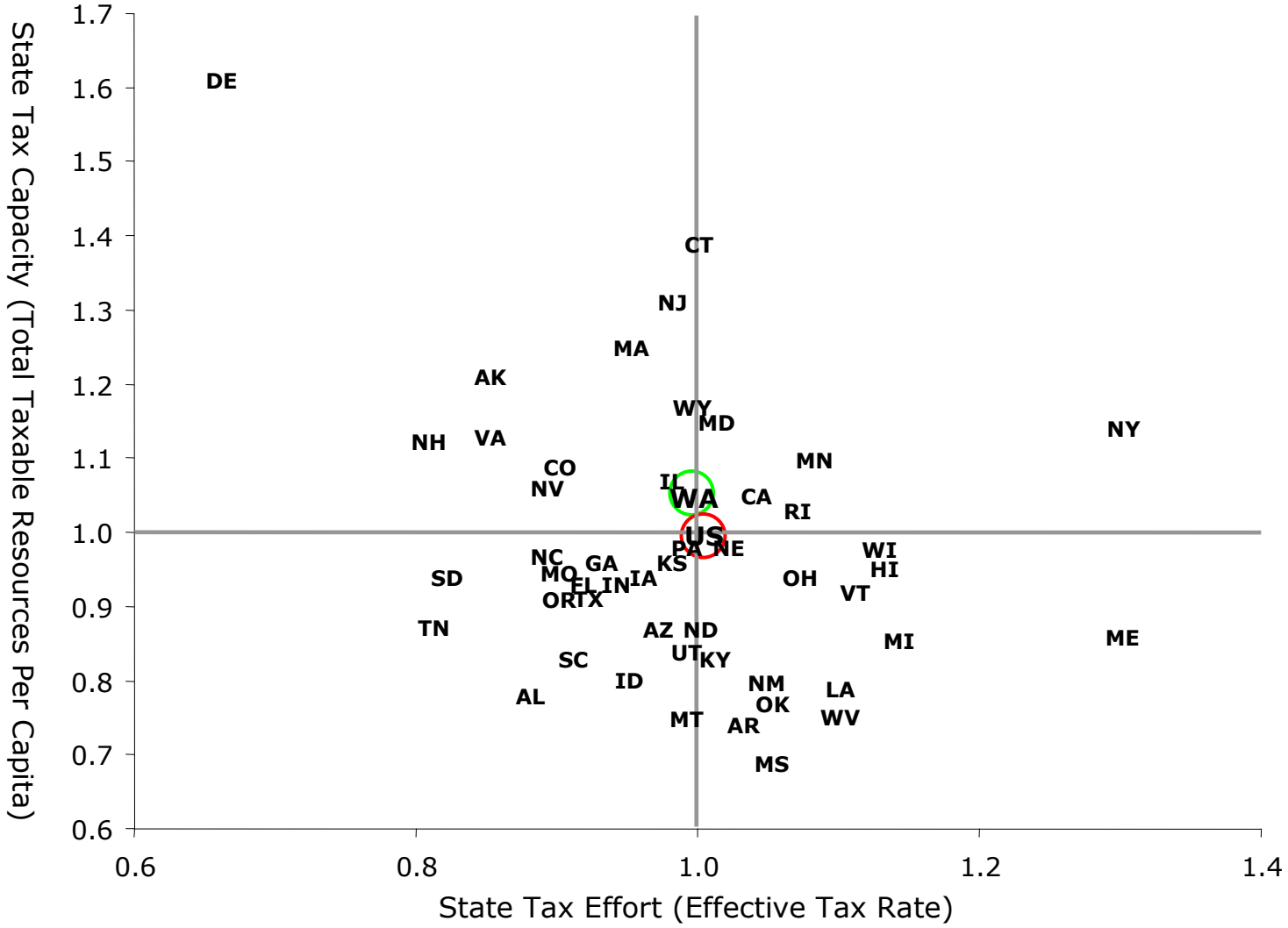
THE FINANCIAL ENVIRONMENT FOR HIGHER EDUCATION IN WASHINGTON

State Tax Capacity & Effort
Washington Indexed to U.S. Average



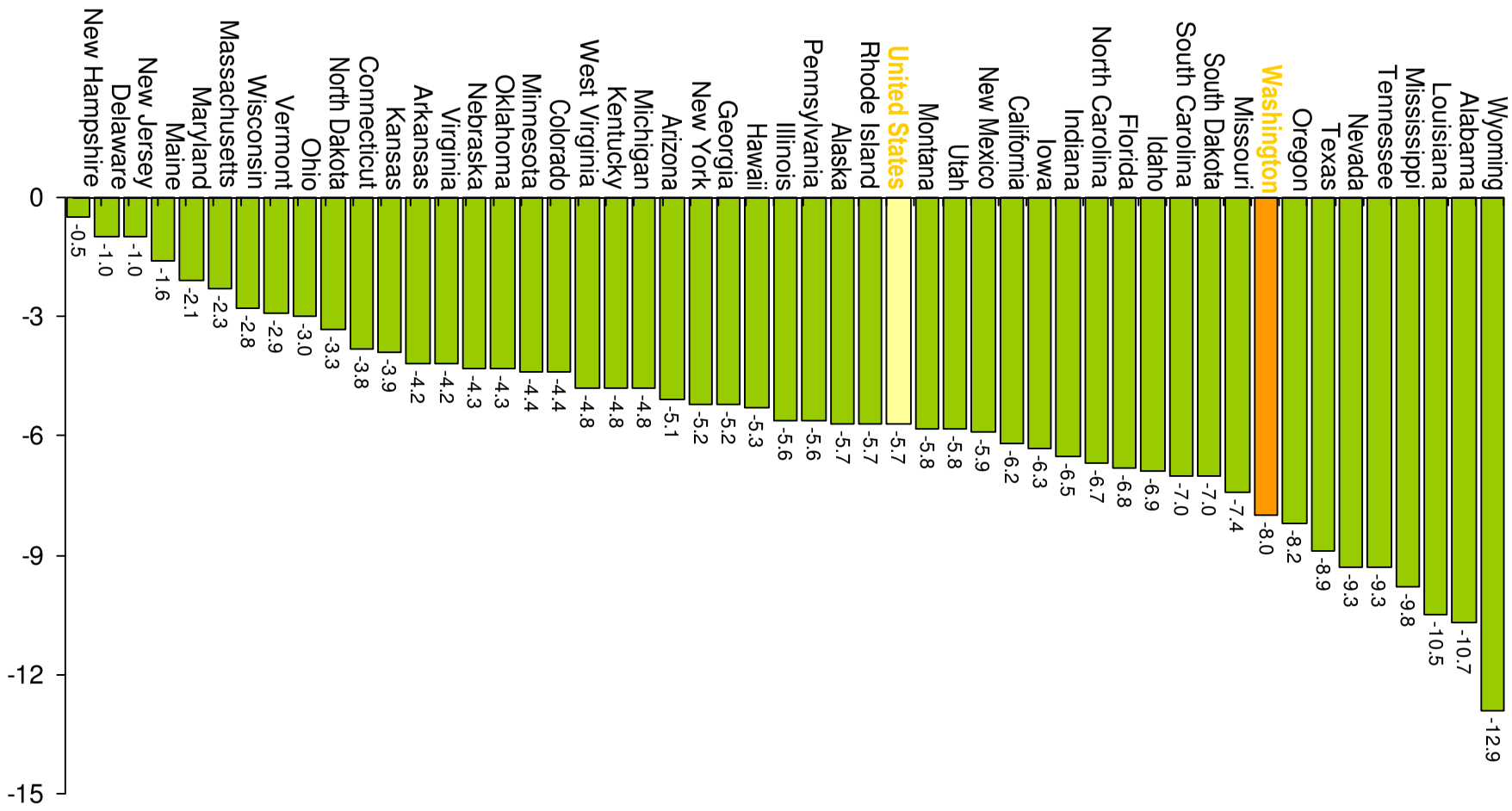
Source: State Higher Education Executive Officers (SHEEO)

State Tax Capacity & Effort
Washington Indexed to U.S. Average



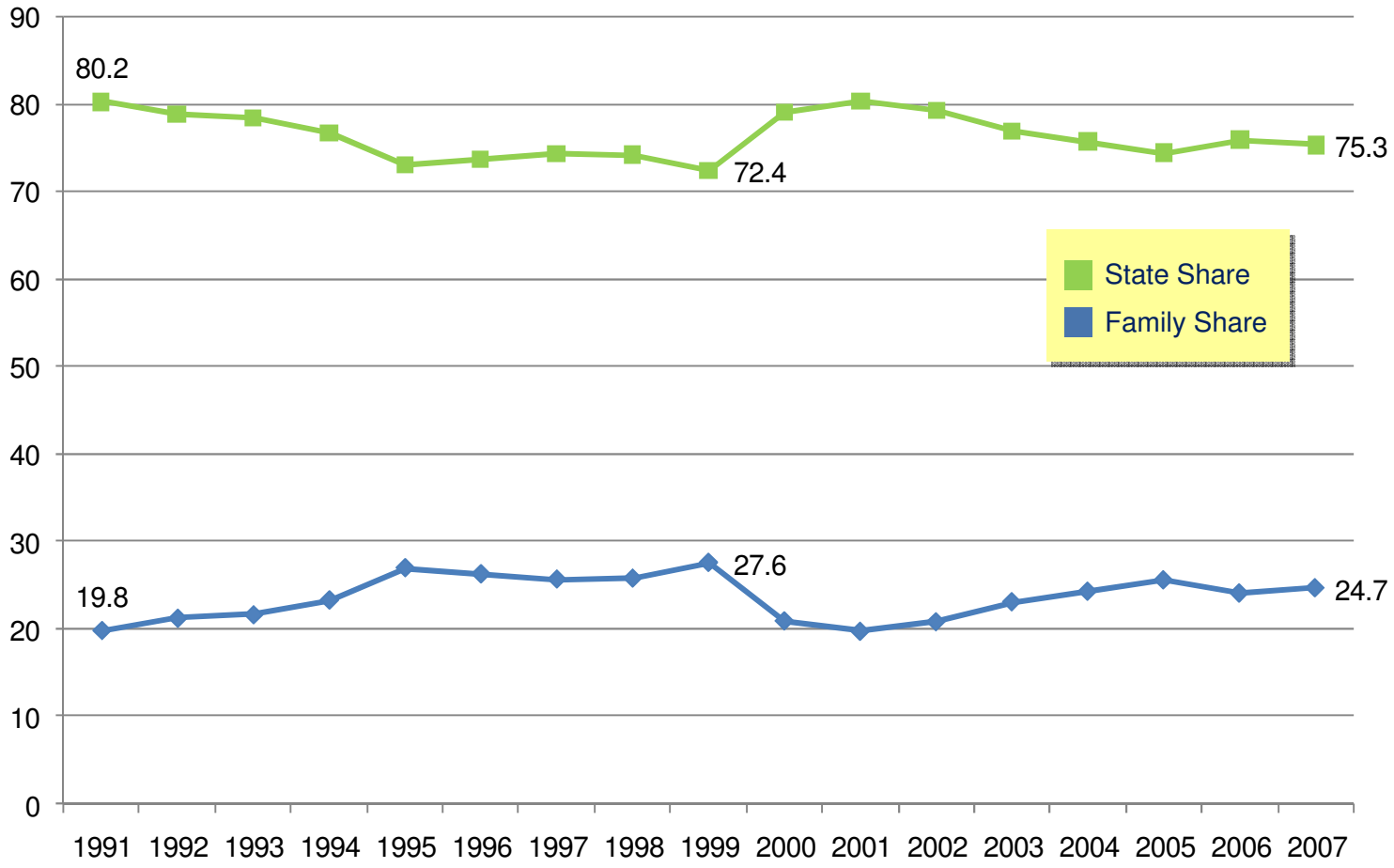
Source: State Higher Education Executive Officers (SHEEO)

Projected State and Local Budget Surplus (Gap) as a Percent of Revenues, 2013



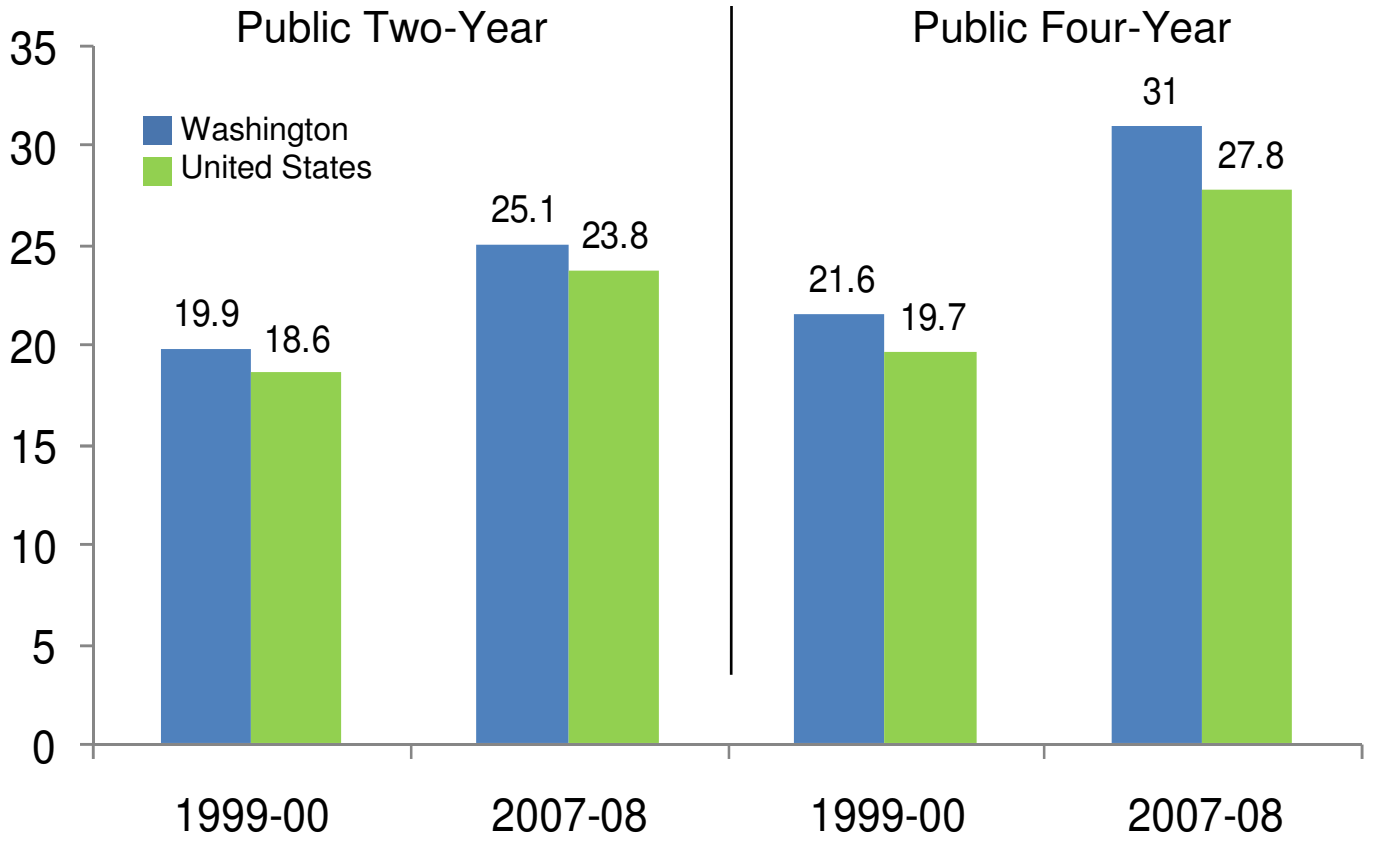
Source: NCHEMS; Don Boyd (Rockefeller Institute of Government), 2005

State & Family Share of Funding for Public Higher Education, 1991 – 2007, Washington



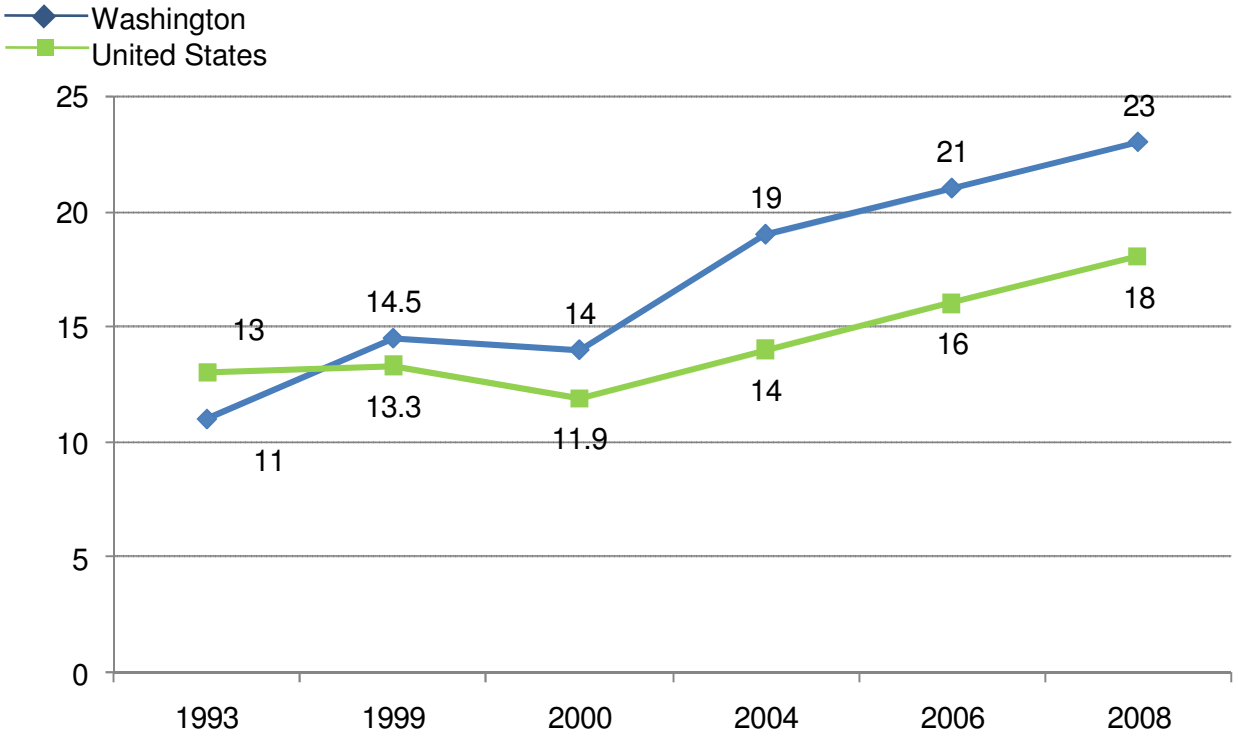
Source: NCPPHE, Measuring Up:
The State-by-State Report Card for Higher Education

Percentage of Income Needed to Pay for College at Public Two- & Four-Year Institutions, 2000-2008



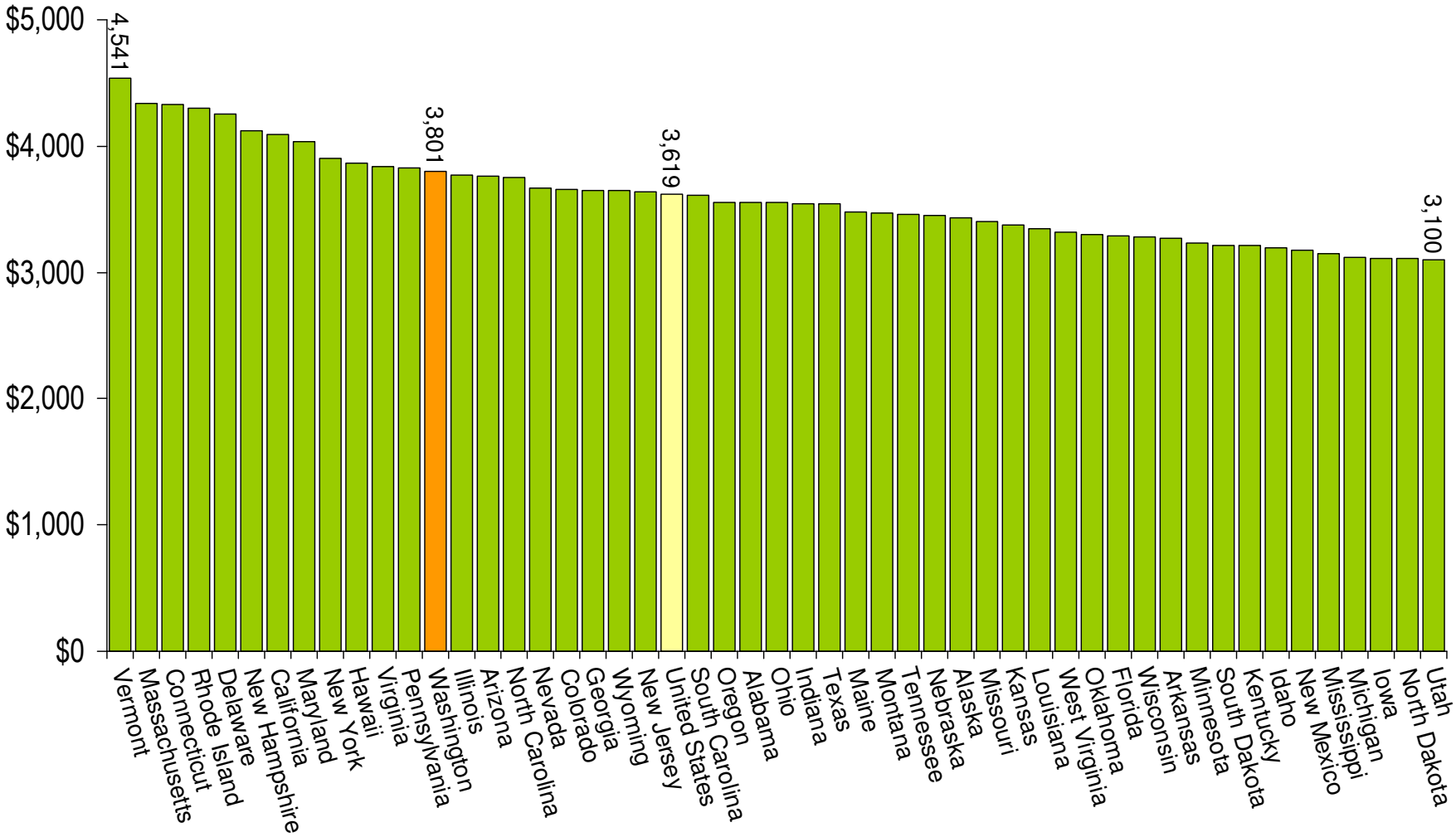
Source: NCPPHE, Measuring Up:
The State-by-State Report Card for Higher Education

Share of Income that the Poorest Families Need to Pay for Tuition at the Lowest Priced Colleges



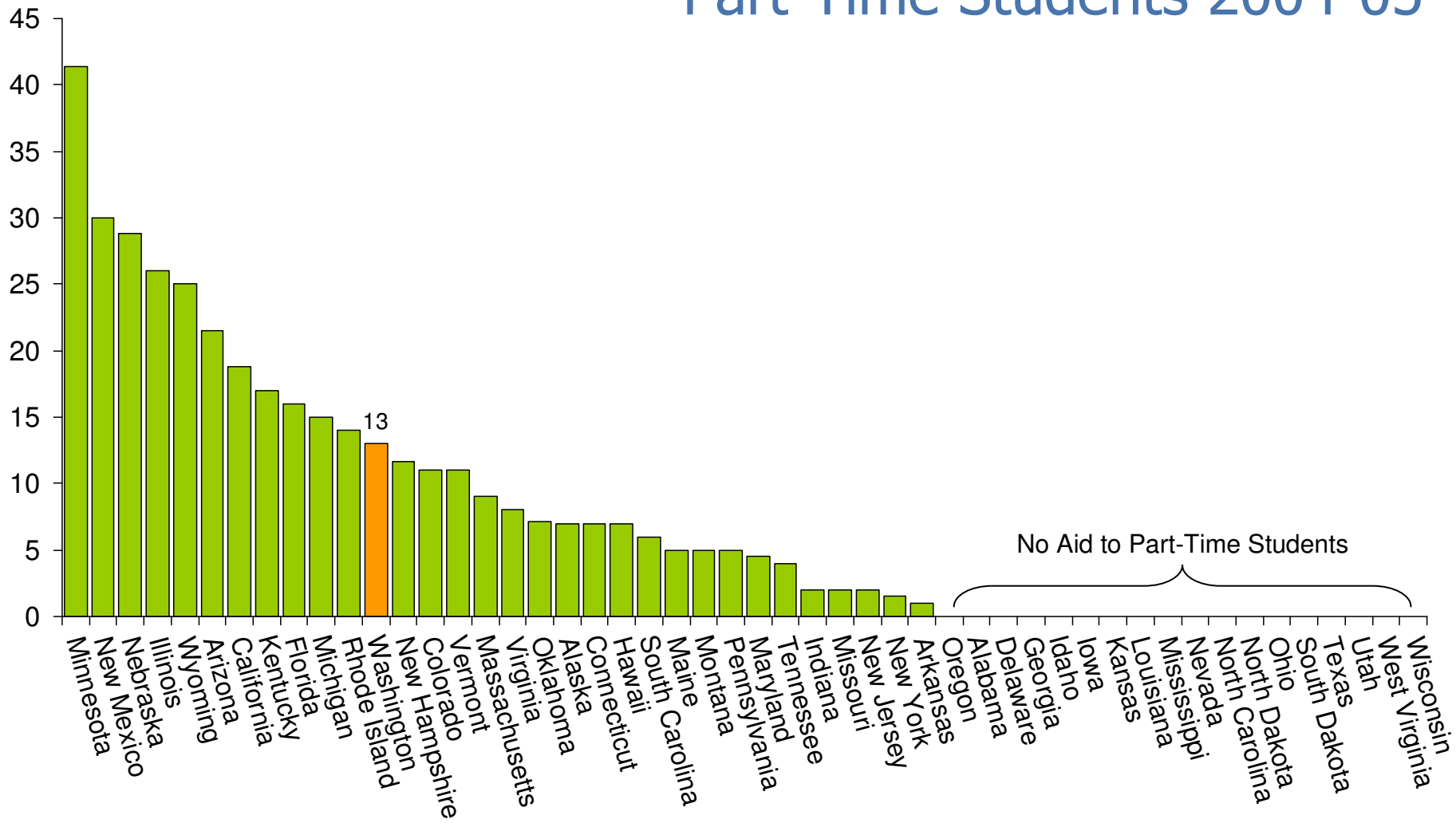
Source: NCPPHE, Measuring Up:
The State-by-State Report Card for Higher Education

Average Loan Amount Students Borrow Each Year, 2004



Source: NCPPHE, Measuring Up: The State-by-State Report Card for Higher Education

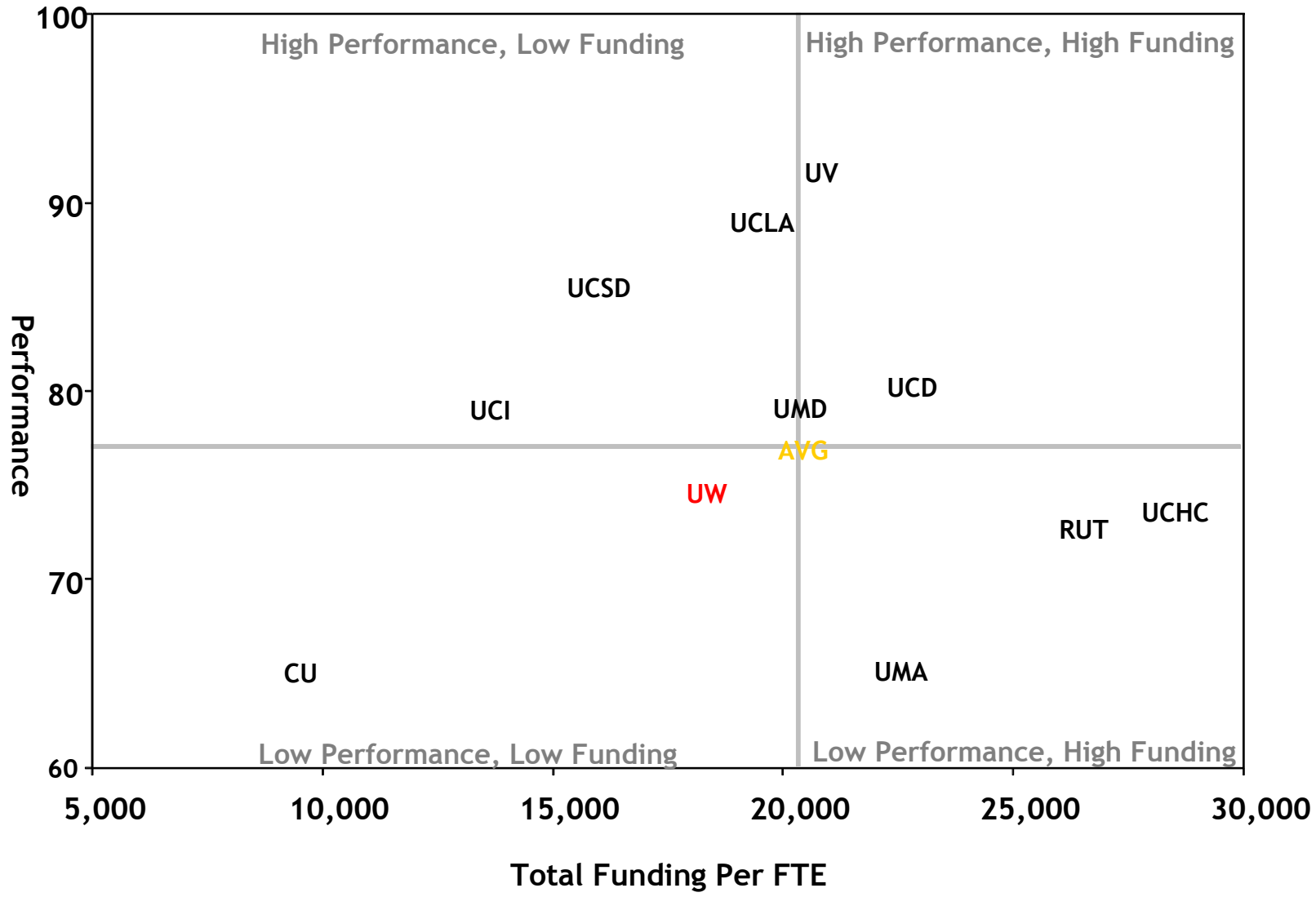
Proportion of Need-Based Aid Distributed to Part-Time Students 2004-05



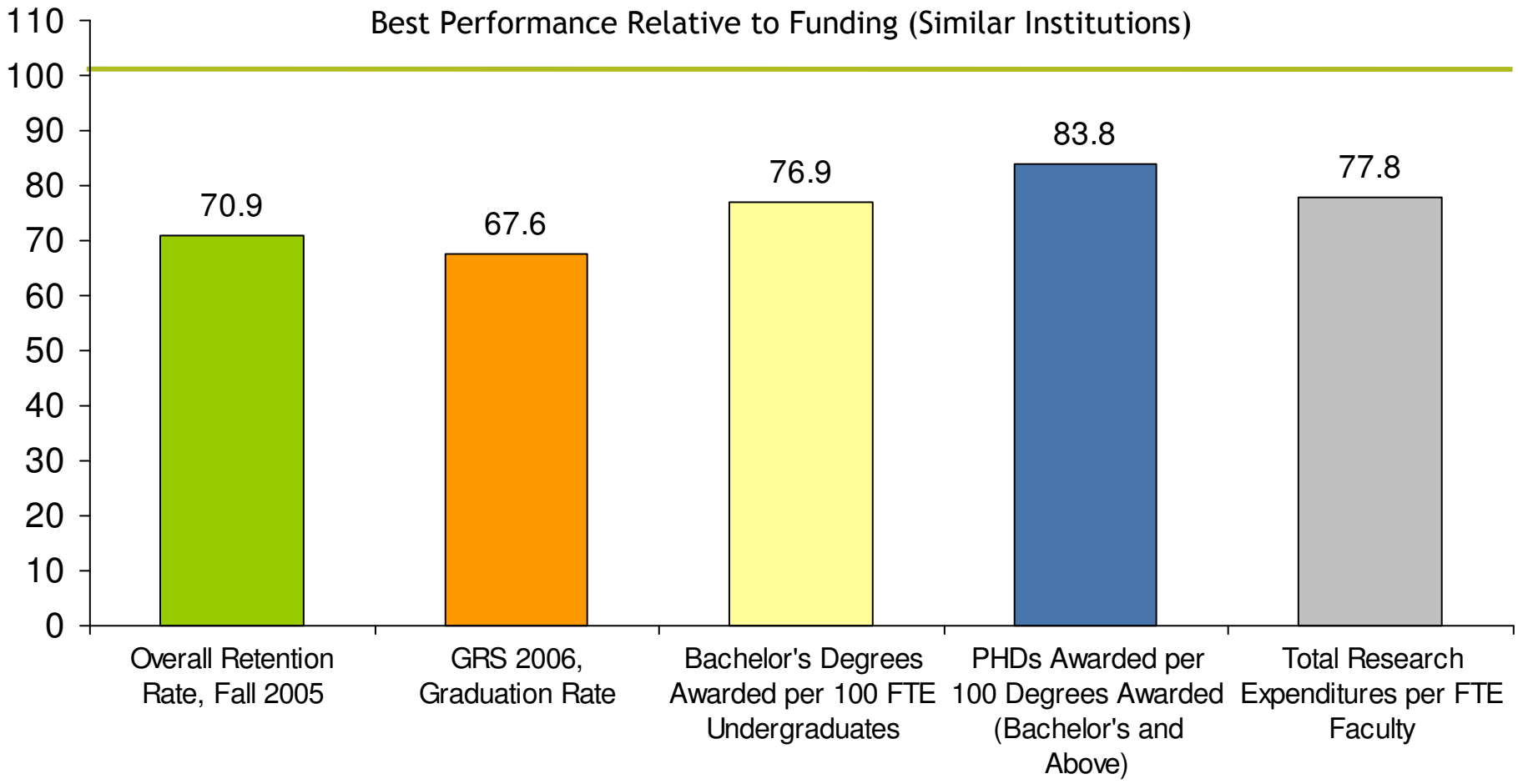
Source: NCHEMS Student Financial Aid Survey

IT'S NOT JUST ABOUT THE MONEY

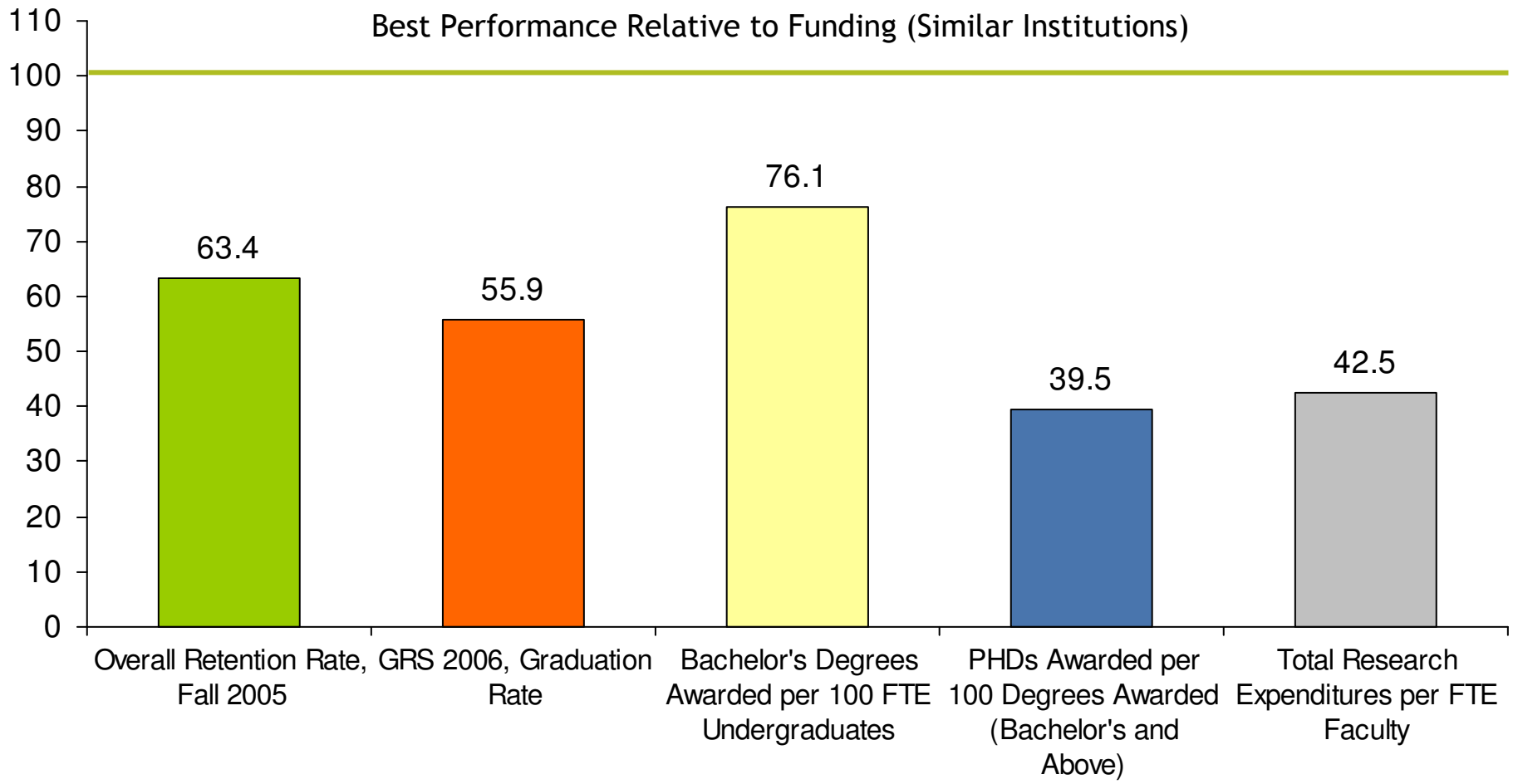
Six-Year Graduation Rate



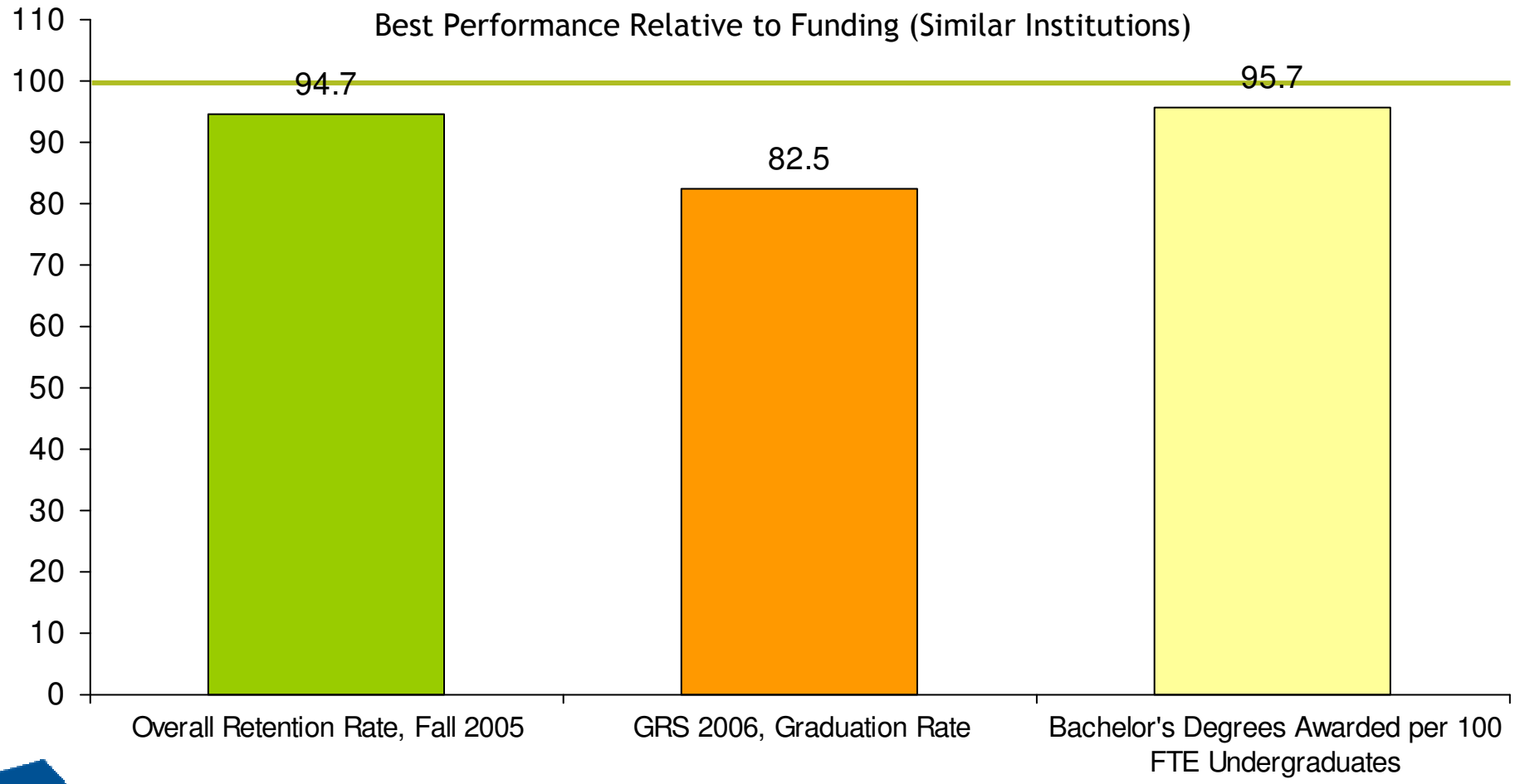
Summary of Performance Relative to Funding, University of Washington (Index Scores)



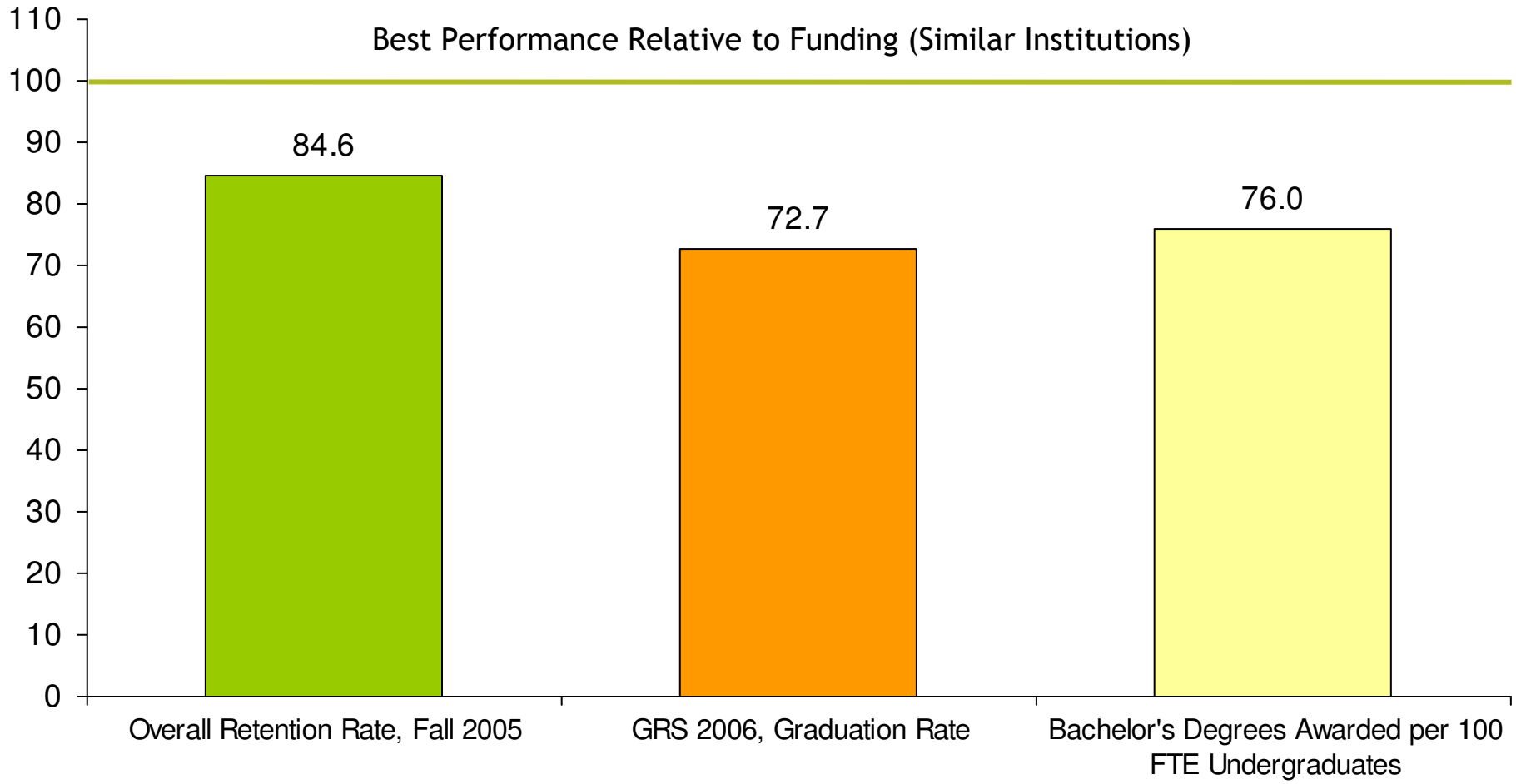
Summary of Performance Relative to Funding, Washington State University (Index Scores)



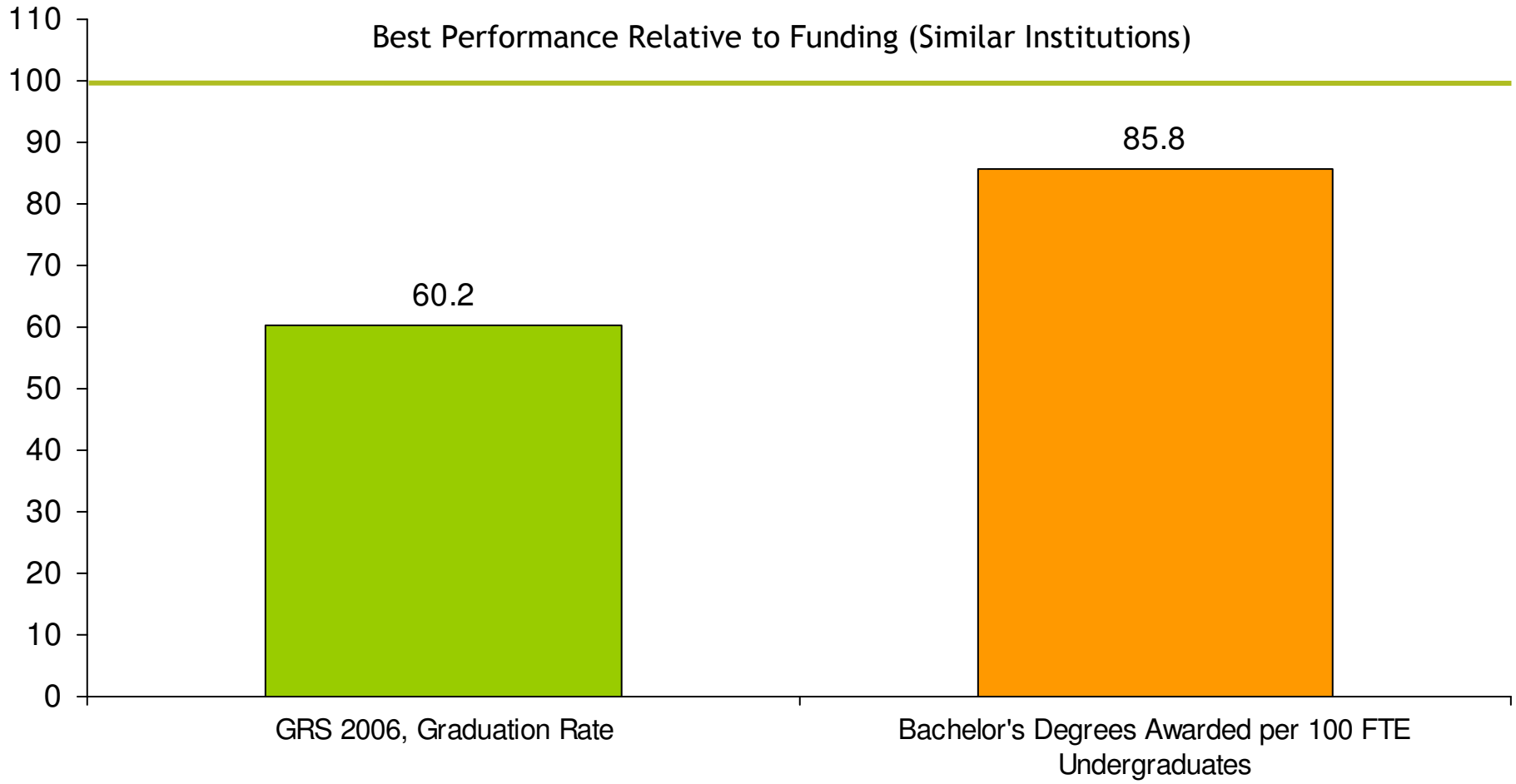
Summary of Performance Relative to Funding, Central Washington University (Index Scores)



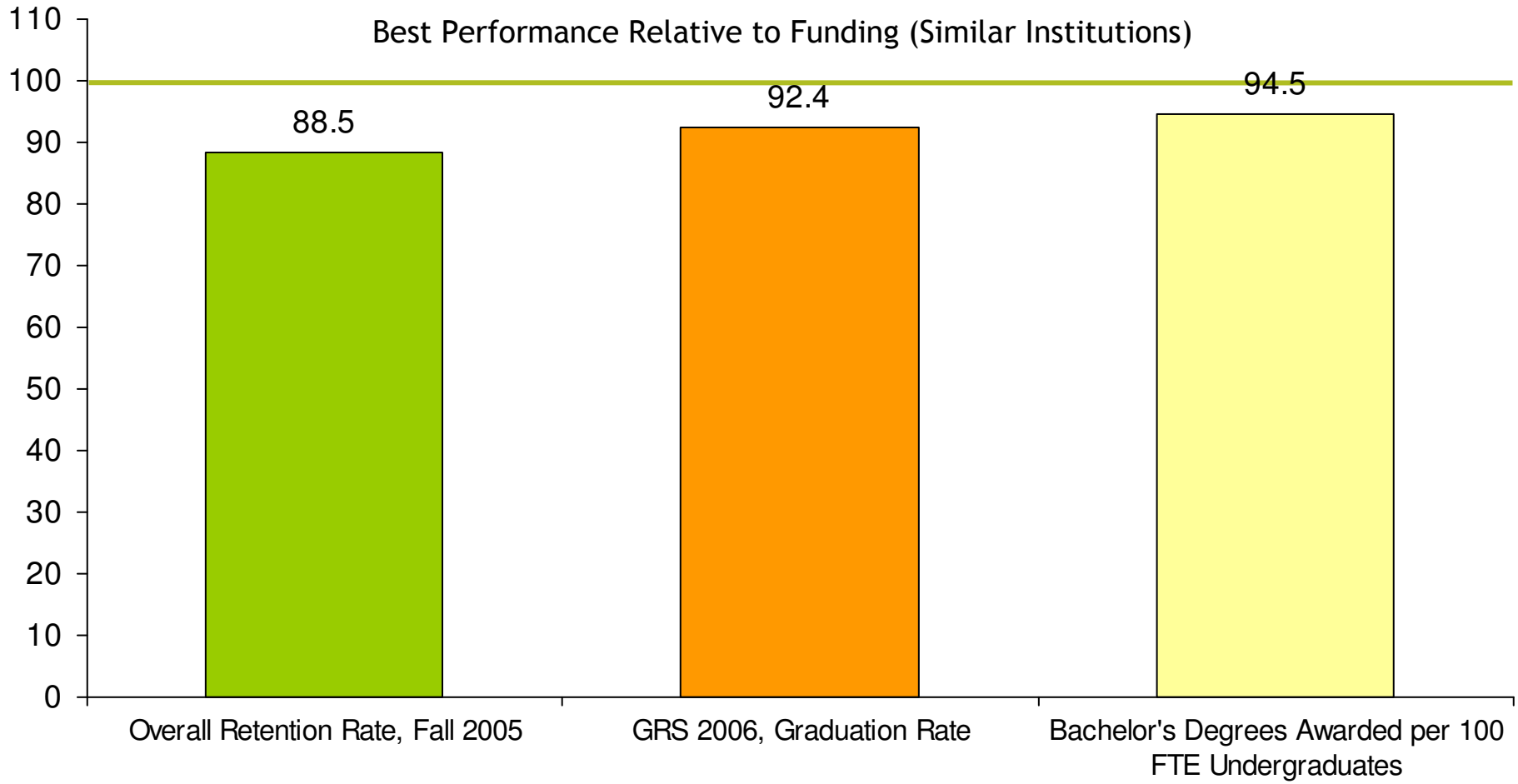
Summary of Performance Relative to Funding, Eastern Washington University (Index Scores)



Summary of Performance Relative to Funding, The Evergreen State College (Index Scores)



Summary of Performance Relative to Funding, Western Washington University (Index Scores)



ISSUES THAT EMERGE FROM THE DATA

Issues

- Low education attainment levels of the most rapidly growing elements of the State's population
- Large geographic disparities in education attainment and income
- A highly educated workforce
  - Dependent on imported talent
  - Substantial differences between supply & demand in key areas
- Lack of capacity at the baccalaureate level
- University R&D strengths not aligned with key Washington industries
- Dependence on established industry/low incidence of start-ups